



جمهورية العراق  
رئاسة ديوان الوقف السني



Republic of Iraq  
Al-Sunni Endowment

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الإمام الأئمة ع

مَجَلَّةُ كَلِمَةٍ

الجزء  
٢

مجلة علمية فصلية محكمة  
اقرأ في هذا العدد:

الضوابط الشرعية للتعامل مع الذكاء الاصطناعي  
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توظيف الذكاء الاصطناعي في القراءات العشر (دراسة في البنية والتركيب والسياق)  
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أثر برنامج إرشادي قائم على الذكاء الاصطناعي في تقليل التحديات الأخلاقية ..  
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رجب ١٤٤٧ هـ - كانون الأول ٢٠٢٥ م

Al- Imam Al-Adham  
University College

A.D 2025 A.H 1447



ISSN: 1817-6674

رقم الإيداع في دار الكتب والوثائق ببغداد هو 818 في 2005/3/17م  
coll.magazine@imamaladham.edu.iq

عدد خاص بالمؤتمر العلمي الدولي السنوي التاسع عشر في العلوم الإنسانية والتطبيقية، تحت شعار: «الذكاء الاصطناعي: رؤية شرعية وتكامل أكاديمي في ضوء التحولات المُستقبلية»، في رحاب كلية الإمام الأعظم الجامعة.

ISSN: 1817-6674

رقم الإيداع في دار الكتب والوثائق ببغداد هو 818 في 2005/3/17م  
coll.magazine@imamaladham.edu.iq

مَجَلَّةُ كَلِيَّةِ

# الإمام الأعظم أبي حنيفة بن عيسى

برعاية السيد معالي رئيس ديوان الوقف السني

أ.د. عامر شاكر عبد الجنابي المحترم ..

وبإشراف

السيد عميد كلية الإمام الأعظم الجامعة

أ.د. صلاح الدين فليح حسن المحترم

تقيم كلية الإمام الأعظم الجامعة مؤتمرها العلمي الدولي

السنوي التاسع عشر في العلوم الإنسانية والتطبيقية، تحت شعار:

«الذِّكَاؤُ الْإِصْطِنَاعِيُّ: رُؤْيَةُ شَرْعِيَّةٍ وَتَكَامُلٌ أَكَادِيمِيٌّ

فِي ضَوْءِ التَّحَدِّيَّاتِ الْمُسْتَقْبَلِيَّةِ»

الذي عقد في بغداد السلام بتاريخ: ٨ - ٩ رجب ١٤٤٧ هجري

الموافق ٢٨ - ٢٩ كانون الأول ٢٠٢٥ ميلادي

في رحاب كلية الإمام الأعظم الجامعة

«الجزء الثاني»

## هيئة تحرير المجلة لسنة ٢٠٢٦م

- أ.د. صلاح الدين فليح حسن - عميد كلية الإمام الأعظم الجامعة ..... المشرف العام
- أ.د. فهيمي أحمد عبد الرحمن ..... رئيس التحرير
- أ.م.د. علي داود خلف ..... مدير التحرير
- أ.د. إسماعيل عبد عباس ..... عضو
- أ.د. محمود عبد العزيز محمد ..... عضو
- أ.د. حقي إسماعيل محمود ..... عضو لغوي
- أ.د. حسام مشكور عواد ..... عضو
- أ.د. محمد عبد القادر عجاج ..... عضو مترجم إنكليزي
- أ.د. وسام محمد خليفة ..... عضو
- أ.د. أحمد ياسين معتوق ..... عضو
- أ.د. خالد مصطفى عبيد ..... عضو
- أ.د. نور سعد محسن ..... عضو
- أ.د. وصفي عاشور أبو زيد / تركيا ..... عضو
- أ.د. محسن المطيري / الكويت ..... عضو
- أ.د. لبنى خميس مهدي / وزارة التعليم العالي ..... عضو
- أ.م.د. عبد الوهاب أحمد حسن الطه ..... عضو
- أ.م.د. محمد صالح حسن / دائرة البحوث ..... عضو

اللجنة العلمية

ت	الاسم	الصفة
١	أ.د. خليل إبراهيم حمودي	رئيساً
٢	أ.د. مكّي وليد عبد الكريم	عضواً
٣	أ.د. شيخموس ديمير (رئيس جامعة غازي عنتاب- تركيا)	عضواً
٤	أ.د. عبد الرحمن حمدي شافي (كلية العلوم الإسلامية-جامعة الأنبار)	عضواً
٥	أ.د. براء عبد الرزاق كامل (كلية الآداب- الجامعة العراقية)	عضواً
٦	أ.د. قاسم طه محمد	عضواً
٧	أ.د. شاكر محمود حسين	عضواً
٨	أ.د. مصعب سلمان أحمد	عضواً
٩	أ.د. معاذ عبد الستار شعبان	عضواً
١٠	أ.د. إياد إبراهيم حمودي	عضواً
١١	أ.د. عبد الكريم ناصر محمود	عضواً
١٢	أ.د. إسماعيل عبد عباس	عضواً
١٣	أ.د. يوسف طارق جاسم	عضواً
١٤	أ.د. لبنى رياض عبد الجبار	عضواً
١٥	أ.د. أحمد ياسين معتوق	عضواً
١٦	أ.د. حقي إسماعيل محمود	عضواً
١٧	أ.د. عمر علي حسين	عضواً
١٨	أ.د. وسام محمد خليفة	عضواً
١٩	أ.د. عماد محمد فرحان	عضواً
٢٠	أ.د. أحمد إياد أنور	عضواً
٢١	أ.د. محمد حسن علي ظاهر	عضواً

عضواً	أ.د. طارق سعود خليل	٢٢
عضواً	أ.د. أحمد نصيف جاسم	٢٣
عضواً	أ.د. باسم عبد الله عبيد	٢٤
عضواً	أ.م.د. محمد عبد الجبار عمران (كلية الآداب- الجامعة العراقية)	٢٥
عضواً	أ.م.د. باسم محمد علي	٢٦
عضواً	أ.م.د. ثابت شهاب أحمد	٢٧
عضواً	أ.م.د. عبد الوهاب أحمد حسن	٢٨
عضواً	أ.م.د. زكريا صالح سيف	٢٩
عضواً	أ.م.د. عمار عيسى عمر	٣٠
عضواً	أ.م.د. عثمان راشد مجيد	٣١
عضواً	أ.م.د. عبد الرحمن خلف مطلب	٣٢
عضواً	أ.م.د. مي حسن سريسيح	٣٣
عضواً	أ.م.د. ضياء الدين عبد الله محمد	٣٤
عضواً	أ.م.د. أحمد صديق إبراهيم	٣٥
عضواً	أ.م.د. قصي مساهر محمد	٣٦
عضواً	أ.م.د. زهراء عدنان عبد الكريم	٣٧
عضواً	أ.م.د. فاروق نهاد عبد	٣٨
عضواً	أ.م.د. عمر ياسين علي	٣٩
عضواً	أ.م.د. عمر حسين علوان	٤٠
عضواً	أ.م.د. قحطان عدنان عبد الواحد	٤١
عضواً	أ.م.د. طه أحمد حميد	٤٢
عضواً	أ.م.د. حسين نوار حسين	٤٣
عضواً	أ.م.د. مثنى علوان عبد	٤٤
عضواً	أ.م.د. أحمد هيثم نجم	٤٥
عضواً	أ.م.د. أحمد مهدي عبيد	٤٦

عضواً	م.د. بشار إبراهيم حميد	٤٧
عضواً	م. بكر حسين علوان (سكرتير المؤتمر)	٤٨

### اللجنة التحضيرية

التخصص	الاسم	ت
رئيساً	أ.د. إسماعيل خليل إبراهيم	١
عضواً	أ.د. عبد الباسط أحمد حسن	٢
عضواً	أ.د. محمود جاسم معيدي	٣
عضواً	أ.م.د. عاصف دحام سالم	٤
عضواً	أ.م.د. علي داود خلف	٥
عضواً	أ.م.د. ياسين مؤيد ياسين	٦
عضواً	أ.م.د. إيناس عبد السلام داود	٧
عضواً	أ.م.د. أحمد شاکر رشيد	٨
عضواً	أ.م. معن نواف عبود	٩
عضواً	أ.م. حبيب عبد الستار جبار	١٠
عضواً	أ.م.د. عمر حسن رشيد	١١
عضواً	أ.م.د. نزار صالح عبد	١٢
عضواً	م.علي إیاد إبراهيم	١٣
عضواً	م.م. إبراهيم سمير موسى	١٤
عضواً	م.م. محمد حميد خضير	١٥
عضواً	السيد فراس رشيد عليوي (سكرتير اللجنة)	١٦

### اللجنة الإعلامية والإدارية والمالية

ت	الاسم	الصفة
١	أ.م.د. دريد عيسى إبراهيم	رئيساً
٢	أ.د. مهند ليث عبد العزيز	عضواً
٣	م. مروان محمد أمين	عضواً
٤	أ.م.د. غانم أحمد حسين	عضواً
٥	أ.م.د. زياد إبراهيم طه	عضواً
٦	م.د. أسامة زيد محمد	عضواً
٧	م.د. محمود محمد وهيب	عضواً
٨	م.م. علي عبد الحسين حسن	عضواً
٩	السيد المعتصم مؤيد عبد الرحمن	عضواً
١٠	السيد إياد مسعود عز الدين	عضواً
١١	السيد أسامة عبد الستار جبار	عضواً
١٢	السيد حيدر ماجد جابر	عضواً
١٣	السيد نزار فائق نوفان	عضواً
١٤	ميس محمد صالح	عضواً
١٥	السيد إحسان علي سليمان	عضواً
١٦	السيد يعرب خالد ستار	عضواً
١٧	رغد حسن خشان	عضواً
١٨	إستبرق أكرم عجلان	عضواً
١٩	السيد عمر محمود زيدان (سكرتير اللجنة)	عضواً

## مجلة كلية الإمام الأعظم الجامعة

Al- Imam Al- Adham

University College Journal

الرقم الدولي

ISSN:1817\_6674



مجلة كلية الإمام الأعظم الجامعة، مجلة إنسانية من المجالات العلمية الأكاديمية الرصينة، وقد صدرت موافقة وزارة التعليم العالي والبحث العلمي لاعتمادها بالرقم: بت/٨٦٤ في ٢٤ / ٥ / ٢٠٠٥ م.

### شروط النشر في المجلة

#### شروط النشر العامة:

تسعى هيئة التحرير في مجلة كلية الإمام الأعظم الجامعة إلى الارتقاء بمعامل التأثير (Impact Factor)، تمهيداً لدخول المستوعات العلمية العالمية، وعليه تنشر مجلة الكلية البحوث التي تتسم بالرصانة العلمية والقيمة المعرفية، وبسلامة اللغة، ودقة التوثيق وفق الشروط الآتية:

١. ألا يكون البحث منشوراً سابقاً في مجلة أخرى، وألا يكون جزءاً من بحث سابق منشور، أو من رسالة جامعية، وعلى الباحث أن يوقع نموذج تعهدٍ بألا يكون البحث منشوراً، أو سبق تقديمه للنشر في مجلة أخرى، وألا يقدمه للنشر في مجلة أخرى بعد نشره في مجلة كليتنا، وأن يوافق على نقل حقوق نشر البحث إلى المجلة في حال قبول نشره.

- مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————
٢. ألا يذكر اسم الباحث أو أي إشارة تدلُّ عليه في متن البحث؛ لضمان سرية وحيادية عملية التحكم.
٣. ألا يزيد عدد الكلمات في البحث على (٨٠٠٠) كلمة، مع المصادر والملاحق، أو ألا يزيد على خمس وعشرين صحيفة.
٤. أن تحتوي الصحيفة الأولى من البحث ما يأتي:
- أ. عنوان البحث باللغة العربية والإنجليزية.
- ب. اسم الباحث ودرجته العلمية وتخصصه باللغة العربية والإنجليزية.
- ج. مكان عمل الباحث باللغة العربية والإنجليزية.
- د. رقم هاتف الباحث وبريده الإلكتروني الجامعي.
٥. يقدم الباحث ملخصًا (باللغة العربية والإنجليزية) لا يزيد على (٢٠٠) كلمة.
٦. يوضع بعد الملخص (Abstract) مباشرة الكلمات المفتاحية لموضوع البحث (Key word).
٧. على الباحث اتباع قواعد الاقتباس وتوثيق المصادر، وأخلاقيات البحث العلمي بما يتوافق مع سياسة المجلة.
٨. تكتب مصادر البحث في صحيفة أو صحائف مستقلة مرتبة بحسب الأصول المعتمدة، وذلك على النحو الآتي: عنوان الكتاب، اسم المؤلف، دار النشر، مكان النشر (المدينة) رقم الطبعة مثال (ط٣)، (سنة الطبع).
٩. الاستشهاد بعددين من أعداد المجلة المنشورة سابقًا والمرفوعة في الموقع الإلكتروني الخاص بكليتنا في الرابط الإلكتروني: <https://www.iasj.net/iasj/journal/issues/224>
٩. ترجمة المصادر باللغة الإنجليزية.
١٠. تطبق المجلة نظام فحص الاستلال الإلكتروني باستخدام برنامج (Turnitin) ويرفض نشر الأبحاث التي تتجاوز فيها نسبة الاستلال ٢٠٪.
١١. يخضع البحث لفحص أولي تقوم به هيئة التحرير في المجلة، وذلك لتقرير أهلية البحث للتحكيم، ويحق لها أن تعتذر عن قبول البحث دون تقديم الأسباب.
١٢. تتبع المجلة التقويم المزدوج السري لبيان صلاحية البحث للنشر، إذ يعرض البحث المقدم للنشر على محكمين اثنين من ذوي الاختصاص، ويتم اختيارهما بسرية مطلقة، بالإضافة إلى عرض البحث على خبير لغوي لتقويم سلامته اللغوية.

- مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————
١٣. الأبحاث التي يقترح المحكمون إجراء تعديلات عليها لتكون صالحة للنشر، تعاد إلى أصحابها لإجراء التعديلات المطلوبة عليها، وخلاف ذلك لا يتم استلام البحث، وستتم مراجعة البحث من قبل هيئة التحرير للتأكد من التزام الباحث بالأخذ بجميع الملاحظات المثبتة من قبل المقيمين.
١٤. تُعبّر الأبحاث المنشورة في المجلة عن آراء أصحابها، لا عن رأي المجلة.
١٥. تنشر المجلة أعدادًا خاصة بالمؤتمرات العلمية المتوافقة مع تخصص المجلة.
١٦. أجور نشر البحث: يدفع الباحث (٥٠) ألف دينار لتغطية أجور التحكيم، ويكمل دفع بقية الأجور عند قبول البحث للنشر.
١٧. لا تأخذ المجلة أي أجور لنشر الأبحاث المقدمة من باحثين من خارج العراق.
١٨. يتم إرسال الأبحاث عبر الإيميل: [magazine@imamaladham.edu.iq](mailto:magazine@imamaladham.edu.iq).
١٩. تخريج النصوص القرآنية والحديث النبوي الشريف على ضوء المنهج العلمي الدقيق الكامل.
٢٠. يزود الباحث بنسختين مستلة، بعد النشر.

### شروط النشر (الفنيّة):

- ١- يقدّم البحث بملف واحد، يبدأ بالعنوان وينتهي بالمصادر، وألاً يزيد على خمس وعشرين صحيفة.
- ٢- تكون الهوامش أسفل كل صحيفة (تلقائياً وليس يدوياً).
- ٣- حجم الخط للمتن (١٦)، وللهامش (١٢).
- ٤- نوع الخط باللغة العربية ((Simplified Arabic واللغة الإنجليزية Times New Roman))
- ملاحظة: في حال عدم الأخذ بشروط النشر نعتذر عن استلام البحث ونشره.
- يمكن زيارة موقع المجلة في مبنى الكلية في سبع إيكار أو التواصل عبر البريد الإلكتروني [magazine@imamaladham.edu.iq](mailto:magazine@imamaladham.edu.iq).
- أو الاتصال بمدير التحرير عبر الهاتف (٠٧٧٣٢٤٣٥٦٩٣)، ويمكن الاطلاع على أعداد المجلة عن طريق موقع وزارة التعليم العالي والبحث العلمي من خلال مسح رمز QR في أعلى الصفحة.

البيان الختامي للمؤتمر العلمي الدولي التاسع عشر  
في العلوم الإنسانية والتطبيقية  
تحت شعار: «الدكاء الاصطناعي: رؤية شرعية وتكامل أكاديمي  
في ضوء التحديات المستقبلية»

الحمد لله الذي جعل العقل أمانةً، والعلم رسالةً، وسخر للإنسان من أدوات المعرفة ما يُعينه على الفهم والاستخلاف، فأقام به ميزان التفكير، وضبط به حركة التطور، فلا تنفصل التقنية عن القيم، ولا يتقدم المنجز على الإنسان، والصلاة والسلام على سيدنا محمد ﷺ، إمام العلماء، ومعلم الإنسانية، الذي قرن العلم بالهداية، وربط المعرفة بالأخلاق، فكان هديه ميزان الرشد، ومنهجه سبيل الاتزان، وعلى آله وصحبه ومن سار على نهجه القويم إلى يوم الدين، وبعد... ففي ختام أعمال هذا المحفل العلمي المبارك، ومن بغداد السلام، حاضرة العلم، وموئل الحضارة، ومهد التلاحق المعرفي عبر العصور، وفي رحاب العراق الذي ما زال، رغم التحديات، يحمل في ذاكرته رسالة القلم والكتاب، اختتمت كلياته الإمام الأعظم الجامعة أعمال مؤتمرها العلمي الدولي التاسع عشر للعلوم الإنسانية والتطبيقية، تحت شعار: «الدكاء الاصطناعي: رؤية شرعية وتكامل أكاديمي في ضوء التحديات المستقبلية»، والذي عقد يوم الأحد السابع من شهر رجب، لسنة سبع وأربعين وأربعمئة وألف للهجرة النبوية الشريفة، الموافق الثامن والعشرين من شهر كانون الأول، لسنة خمس وعشرين وألفين للميلاد، برعاية كريمة من لدن معالي رئيس ديوان الوقف السني، الأستاذ الدكتور عامر شاكر عبد الجبائي، وإشراف الأستاذ الدكتور صلاح الدين فليح حسن السامرائي، وفق رؤية أكاديمية واضحة انتهجها منذ تسنمه عمادة الكلية، تقوم على ضرورة التحول الرقمي بوصفه خياراً استراتيجياً لمواكبة الحداثة العلمية، وتسريع الإنجاز المؤسسي، وتوظيف التقنيات الذكية في خدمة التعليم والبحث العلمي، ضمن إطار قيمي رصين يوازن بين الأصالة والمعاصرة، وبمشاركة نخبة مباركة من العلماء والباحثين والأكاديميين من داخل العراق وخارجه، حضوراً ومشاركة علمية عن بُعد.

وقد قدمت إلى اللجنة العلمية عشرات البحوث، قبل منها للمشاركة واحد وأربعون بحثاً محلياً، وتسعة أبحاث دولية، توزعت برامجها على جلسات عدة، وتشرفنا باستضافة عدد

مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————

مِنَ الضُّيُوفِ الْأَكْرَامِ مِنْ جَامِعَاتٍ وَمُؤَسَّسَاتٍ عَرَبِيَّةٍ وَعَالَمِيَّةٍ، فِي أَجْوَاءٍ اتَّسَمَتْ بِالْجِدِّيَّةِ الْعِلْمِيَّةِ، وَعُمُقِ الطَّرْحِ، وَرِصَانَةِ النَّقَاشِ، وَتَكَامُلِ الرُّؤْيَى.

أَيُّهَا الْحُضُورُ الْكَرِيمُ، السَّادَةُ الْبَاحِثُونَ الْفُضَلَاءُ: لَقَدْ جَاءَ هَذَا الْمُؤْتَمَرُ اسْتِجَابَةً وَاعِيَةً لِلتَّحَوُّلَاتِ الْمُتَسَارِعَةِ الَّتِي يَشْهَدُهَا الْعَالَمُ فِي مِيدَانِ التَّقْنِيَّاتِ الذِّكِّيَّةِ، وَإِيمَانًا مِنَ الْكُلِّيَّةِ بِضُرُورَةِ مُقَابَرَةِ الذِّكَاةِ الْإِصْطِنَاعِيَّةِ مُقَابَرَةً عِلْمِيَّةً مُتَوَازِنَةً، لَا تَنْبَهَرُ بِالْمُنْجَرِ التَّقْنِيِّ دُونَ وَعْيِ، وَلَا تَنْغَلِقُ دُونَهُ دُونَ فِقْهِ وَبَصِيرَةٍ، بَلْ تُخْضِعُهُ لِمَوَازِينِ الشَّرِيعَةِ، وَأَخْلَاقِيَّاتِ الْعِلْمِ، وَمَسْئُولِيَّةِ الْإِنْسَانِ عَنِ قَرَارِهِ وَمَصِيرِهِ.

وَقَدْ تَنَاوَلَتْ بُحُوثُ الْمُؤْتَمَرِ وَمَحَاوِرُهُ الْمُتَنَوِّعَةَ أَثَرَ الذِّكَاةِ الْإِصْطِنَاعِيَّةِ فِي الْعُلُومِ الشَّرْعِيَّةِ، وَاللُّغَةِ الْعَرَبِيَّةِ، وَالْعُلُومِ الْإِنْسَانِيَّةِ، وَالْعُلُومِ التَّطْبِيقِيَّةِ، وَالْقَانُونِ، وَالتَّعْلِيمِ، وَالْإِعْلَامِ، وَالتَّارِيخِ وَالجُغْرَافِيَا، مُبَيِّنَةً إِمْكَانَاتِهِ الْوَاعِدَةَ فِي خِدْمَةِ الْمَعْرِفَةِ، وَمُحَدِّدَةً فِي الْوَقْتِ نَفْسِهِ مِنْ مَخَاطِرِ الْمَعْرِفِيَّةِ وَالْأَخْلَاقِيَّةِ، وَلَا سِيَّمَا مَا يَتَّصِلُ بِالتَّحْزِينِ الْخَوَارِزْمِيِّ، وَتَرْيِيفِ الْوَعْيِ، وَانْتِهَاكِ الْخُصُوصِيَّةِ، وَإِضْعَافِ الْمَسْئُولِيَّةِ الْإِنْسَانِيَّةِ، وَفِي ضَوْءِ الْمَشَارَكَاتِ وَالْجَلَسَاتِ الْبَحْثِيَّةِ، وَالنَّقَاشَاتِ الْعِلْمِيَّةِ الْمُسْتَفِيضَةِ وَالبِنَاءِ، خُلِصَ الْمُؤْتَمَرُ إِلَى جُمْلَةٍ مِنَ التَّوَصِيَّاتِ، كَانَتْ مِنْ أَبْرَزِهَا:

أَوَّلًا: إِخْضَاعُ جَمِيعِ تَطْبِيقَاتِ الذِّكَاةِ الْإِصْطِنَاعِيَّةِ لِمَوَازِينِ الشَّرْعِ وَالْأَخْلَاقِ، بِمَا يَحْفَظُ كَرَامَةَ الْإِنْسَانِ، وَيُعَزِّزُ وَعْيَهُ، وَيُصُونُ حَقَّهُ، وَيَضْمَنُ الْإِسْتِعْمَالَ الْمَسْئُولَ لِلتَّقْنِيَّةِ وَتَوْظِيفَهَا فِي خِدْمَةِ الْمُجْتَمَعِ.

ثَانِيًا: تَعَزِيزُ التَّعَاوُنِ وَالتَّكَامُلِ بَيْنَ الْعُلُومِ الشَّرْعِيَّةِ، وَالْإِنْسَانِيَّةِ، وَالتَّطْبِيقِيَّةِ عِنْدَ دِرَاسَةِ تَقْنِيَّاتِ الذِّكَاةِ الْإِصْطِنَاعِيَّةِ، لِضَمَانِ مُقَابَرَةٍ شَامِلَةٍ تَجْمَعُ بَيْنَ الْفَهْمِ النَّظَرِيِّ وَالْقُدْرَةِ التَّطْبِيقِيَّةِ.

ثَالِثًا: تَوْظِيفُ الذِّكَاةِ الْإِصْطِنَاعِيَّةِ تَوْظِيفًا رَشِيدًا فِي خِدْمَةِ الْقُرْآنِ وَعُلُومِهِ، وَالحَدِيثِ وَعُلُومِهِ، وَاللُّغَةِ الْعَرَبِيَّةِ وَعُلُومِهَا، مَعَ ضُرُورَةِ التَّحَقُّقِ النَّقْدِيِّ مِنَ النِّتَائِجِ وَمُرَاجَعَتِهَا، وَعَدَمِ الْإِعْتِمَادِ الْكُلِّيِّ عَلَى مُخْرَجَاتِهِ دُونَ تَمْحِيسِ وَتَدْقِيقِ.

رَابِعًا: الدَّعْوَةُ إِلَى بِنَاءِ أُطُرٍ قَانُونِيَّةٍ وَتَشْرِيعِيَّةٍ وَاضِحَةٍ تُنظِّمُ الْعِلَاقَاتِ الرَّقْمِيَّةَ، وَتُحَدِّدُ الْمَسْئُولِيَّةَ الْقَانُونِيَّةَ، وَتَحْمِي الْمَجْتَمَعِ مِنَ الْإِنْتِهَاكَاتِ التَّقْنِيَّةِ.

خَامِسًا: التَّنْبِيهُ إِلَى الْمَخَاطِرِ الْمُتَرْتِبَةِ عَلَى الْإِسْتِعْمَالِ غَيْرِ الْمُنْضَبِطِ لِلذِّكَاةِ الْإِصْطِنَاعِيَّةِ، وَلَا سِيَّمَا فِي مَجَالَاتِ الْإِعْلَامِ، وَالتَّعْلِيمِ، وَصِنَاعَةِ الرَّأْيِ الْعَامِّ، مَعَ وَضْعِ آليَّاتٍ لِلْحَدِّ مِنَ الْإِنْتِهَاكَاتِ الْمَعْرِفِيَّةِ وَالْأَخْلَاقِيَّةِ.

مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر)

سادساً: تشجيع الجامعات والمؤسسات البحثية على إطلاق مشاريع ودراسات تُعنى باستشراف مستقبل الذكاء الاصطناعي وآثاره المجتمعية والحضارية.

سابعاً: دعم البحوث المشتركة بين علماء الشريعة وخبراء التقنية لتطوير أنظمة تجسد قيم الشرع، وتخدم قضايا العصر، وإنشاء لجان شرعية متخصصة لمواكبة المستجدات التقنية، وإصدار الفتاوى والتوصيات اللازمة.

ثامناً: التأكيد على دور المؤسسات الأكاديمية في نشر الوعي الرقمي، وبناء ثقافة نقدية رشيدة في التعامل مع التقنيات الحديثة.

تاسعاً: إدماج أخلاقيات الذكاء الاصطناعي من منظور إسلامي في المناهج الشرعية والتقنية، لإعداد جيل يجمع بين الإيمان والخبرة، ويكون قادراً على مواجهة تحديات العصر بوعي وحكمة.

وفي الختام، تتقدم كلية الإمام الأعظم الجامعة، ممثلة بعميدها الأستاذ الدكتور صلاح الدين فليح حسن السامرائي، بالشكر الجزيل إلى جميع الباحثين والمشاركين في المؤتمر، وإلى كل من حضر وأسهم، وإلى اللجان العلمية والتحضيرية والإدارية والإعلامية، والأقسام الساندة التي بذلت جهوداً متميزة لإنجاح هذا المحفل العلمي، سائلين الله تعالى أن يجعل مخرجاته علماً نافعا، ورأياً سديداً، وخطوة راسخة في سبيل ترشيد التقنية بالقيم، وتسخير العلم لخدمة الإنسان، لا أداة إفساد أو طغيان.

هذا والحمد لله في البدء والختام، والصلاة والسلام على خير الأنام، وعلى آله وصحبه العلماء الأعلام، وأختتم هذا البيان بالسلام ...

فالسَّلَامُ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ.

صَادِرٌ عَنِ الْمُشَارِكِينَ فِي الْمُؤْتَمَرِ الْعِلْمِيِّ الدُّوَلِيِّ التَّاسِعِ عَشَرَ  
بِرْحَابِ كَلِّيَّةِ الْإِمَامِ الْأَعْظَمِ الْجَامِعَةِ - بَغْدَاد

## المقدمة

الحمدُ لله الذي علّم بالقلم، علّم الإنسانَ ما لم يعلم، وهدهد بنورِ العقلِ حينما أظلم، وفتح له آفاقَ الذكاءِ والتعلّم، فجعل من الآلةِ خادمًا، ومن الفكرِ قائدًا، ومن العلمِ سلّمًا للفهمِ والشُّؤدد، والصلاةِ والسلامِ على من جاء بالعلمِ والهدى، ودلّ البشرية على سُبُلِ الرُّقى والافتداء، سيّدنا محمد، المعلّم الأمين، وعلى آله وصحبه أجمعين.

أما بعد ...

ففي سياقٍ معرفي يشهد تحولاتٍ متسارعة، بات الذكاء الاصطناعي أحد أبرز الظواهر التي تُعيد رسم خارطة العالم في مختلف ميادين الحياة، لقد غدت الآلة تفكّر، وتستنبط، وتتعلّم، وتحاكي العقل البشري في وظائفه العليا، حتى صار الذكاء الاصطناعي قوةً دافعة لا يمكن تجاهل أثرها في تشكيل مستقبل المجتمعات، وأنماط التعليم، ومفاهيم العمل، وحدود المسؤولية الإنسانية.

وانطلاقًا من مسؤوليتها العلمية والدينية والوطنية، تواصل كلية الإمام الأعظم الجامعة أداء دورها الريادي في مواكبة مستجدات العصر، عن طريق إقامة مؤتمرها العلمي الدولي السنوي التاسع عشر للعلوم الإنسانية والتطبيقية، تحت شعار: (الذكاء الاصطناعي: رؤية شرعية وتكامل أكاديمي في ضوء التحديات المستقبلية)؛ ليكون منبرًا علميًا للحوار الرصين، ومجالًا لتلاقح الأفكار بين الباحثين من مختلف التخصصات، في سبيل فهم أعمق لهذه الظاهرة العالمية، وتوجيهها بما ينسجم مع قيمنا الإسلامية الأصيلة وثوابتنا التربوية والفكرية.

وأظهرت هذه التقنية إمكانات هائلة في تسريع الإنجاز، وتحسين الجودة، وتطوير مناهج التعليم والإدارة، وفتح آفاق جديدة للبحث العلمي.

إلا أن الاستعمال غير المنضبط أو غير المؤطر بالقيم والمعايير الأخلاقية قد يخلف آثارًا سلبية عميقة، من بينها: تهديد الخصوصية، وتعزيز التحيز الخوارزمي، وتراجع دور الإنسان في اتخاذ القرار، وإضعاف الروابط الاجتماعية، وطمس الهوية الثقافية والدينية.

ومن هنا، فإن الذكاء الاصطناعي لا يمثل تطورًا تقنيًا فحسب، بل هو تحول في نمط التفكير البشري، ومسارٌ جديدٌ في العلاقة بين الإنسان والآلة، يستوجب تأصيلًا معرفيًا،

مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————  
وتأملًا فلسفيًا، وتأطيرًا شرعيًا وأخلاقيًا، وهو ما تسعى إليه محاور هذا المؤتمر، في أثناء مقاربات متعددة تشمل: الجوانب العلمية، والاجتماعية، والقانونية، والتربوية، فضلاً عن الرؤى الإسلامية الأصيلة التي تستشرف الغد بروح منفتحة وفكر نقدي راشد.  
فكلية الإمام الأعظم الجامعة، إذ تنظم هذا المؤتمر، تؤكد حرصها على بناء جسر معرفي يربط بين التراث العلمي الرصين والتقنية الحديثة، في إطار من المسؤولية الأخلاقية، والانفتاح الواعي، والحرص على أن تظل المعرفة وسيلة لخدمة الإنسان، لا أداة لتغييبه أو إخضاعه.  
نسأل الله أن يكلل هذا الجهد بالتوفيق والسداد، وأن يُثمر المؤتمر نقاشات جادة، ومقترحات نافعة، تسهم في تعميق الوعي، وتوسيع دائرة المسؤولية الأكاديمية اتجاه هذا التحدي العالمي.

### الرسالة:

نطمح في مؤتمرنا إلى تقديم فضاء علمي رصين يُعنى بدراسة آفاق الذكاء الاصطناعي من منظور معرفي شامل، يجمع بين الأصالة والمعاصرة، ويؤسس لرؤية منهجية تدعم الاستفادة من هذه التقنية بما يخدم الإنسان والقيم، ويحذّر من مخاطر الانفلات الأخلاقي وسوء الاستعمال.

### الرؤية:

أن يكون مؤتمر كلية الإمام الأعظم الجامعة منبرًا فكريًا رائدًا في تناول موضوعات الذكاء الاصطناعي برؤية مستقبلية تجمع بين القيم الحضارية والتطور التقني، وتسهم في إنتاج معرفة أصيلة ومؤثرة تبصّر الإيجابيات وتتصدى للسلبيات.

### أهداف المؤتمر:

1. تسليط الضوء على إمكانات الذكاء الاصطناعي في تطوير مناهج البحث العلمي في مختلف التخصصات.
2. تعزيز التكامل بين معطيات الثورة الرقمية وتعاليم الشريعة الإسلامية.
3. استكشاف سبل توظيف الذكاء الاصطناعي في خدمة اللغة العربية وتحليلها.

- مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————
٤. بحث التطبيقات العملية للذكاء الاصطناعي في مجالات العلوم الطبية والهندسية والاقتصادية.
٥. بناء شبكة تواصل بحثي بين الأكاديميين والباحثين في مجالات الذكاء الاصطناعي المختلفة.
٦. بيان المخاطر المحتملة لاستعمال الذكاء الاصطناعي دون ضوابط شرعية وأخلاقية.
٧. مناقشة التحديات الفكرية والقيمية المرتبطة بانتشار الذكاء الاصطناعي.
٨. تحليل الأثر السلبي للذكاء الاصطناعي في حال الانفصال عن المرجعيات الدينية والإنسانية.

### محاور المؤتمر:

#### أولاً: الذكاء الاصطناعي والعلوم الشرعية:

- إمكانات الذكاء الاصطناعي في خدمة العلوم الشرعية.
- الأسس الشرعية للتعامل مع الذكاء الاصطناعي.
- الذكاء الاصطناعي بين الضرورات والمقاصد الشرعية.
- الذكاء الاصطناعي في الفقه وأصوله: أدوات الفتوى الإلكترونية.
- أخلاقيات الذكاء الاصطناعي من منظور الشريعة الإسلامية.
- بيان الانحرافات الشرعية المحتملة في استعمال الذكاء الاصطناعي دون رقابة شرعية.

#### ثانياً: الذكاء الاصطناعي والعلوم اللغوية:

- توظيف تقنيات الذكاء الاصطناعي وأدواته في خدمة علوم اللغة، وتحليل النصوص الأدبية والبلاغية.
- دور الذكاء الاصطناعي في تطوير مناهج تعليم اللغة العربية والإنجليزية.
- المعالجة الآلية للغة العربية والإنجليزية بين التحديات والفرص.
- الذكاء الاصطناعي في تطوير طرائق تعليم اللغة العربية والإنجليزية، وتقويم أداء المتعلمين.
- مخاطر الترجمة الآلية والتشويش الدلالي على النصوص.

### ثالثاً: الذكاء الاصطناعي والعلوم التطبيقية:

- تطبيقات الذكاء الاصطناعي في الطب، والهندسة، وتقنيات الاتصالات الحديثة.
- الذكاء الاصطناعي في الإدارة والاقتصاد والتحول الرقمي.
- النمذجة الذكية في تحليل البيانات واتخاذ القرار.
- التحديات الأمنية في نظم الذكاء الاصطناعي والهجمات السيبرانية.

### رابعاً: الذكاء الاصطناعي والعلوم الإنسانية:

- الذكاء الاصطناعي في التعليم، والتعليم الذكي والتدريب الافتراضي.
- أثر الذكاء الاصطناعي في تحليل الأحداث التاريخية والأنماط الجغرافية وتفسيرها: الإمكانيات العلمية والمخاطر المعرفية.
- الذكاء الاصطناعي والإعلام الرقمي وصناعة الرأي العام.
- الاخلاقيات والقوانين المنظمة لاستعمال الذكاء الاصطناعي.
- الذكاء الاصطناعي والتحديات الأخلاقية في تشكيل السلوك المجتمعي.

## محتويات الجزء الثاني

١. أثر برنامج إرشادي قائم على الذكاء الاصطناعي في تقليل التحديات الأخلاقية وتعزيز السلوك المجتمعي الإيجابي لدى طلاب المرحلة المتوسطة..... ٢١  
أ.د. حسين زيدان ..... ٢١
٢. توظيف الذكاء الاصطناعي في أصول التفسير وقواعده (دراسة تأصيلية تطبيقية) ..... ٦٣  
أ.د. خالد إبراهيم مسلم الألويسي ..... ٦٣
٣. توظيف الذكاء الاصطناعي في القراءات العشر (دراسة في البنية والتركيب والسياق) ..... ٨٩  
أ.د. سلمان عباس عبد ..... ٨٩  
د. علاء عبد الخالق حسين ..... ٨٩
٤. الضوابط الشرعية للتعامل مع الذكاء الاصطناعي ..... ١١٥  
أ.د. عبد الستار إبراهيم الهيتي ..... ١١٥
٥. نمذجة علاقات الإسناد في الجملة العربية باستخدام الشبكات العصبية ..... ١٤١  
أ.د. نعمة دهش فرحان ..... ١٤١
٦. الذكاء الاصطناعي والدراسات التاريخية مستقبل التدوين التاريخي بين الواقع والطموح ..... ١٦٧  
أ.د. وجدان فريق عناد ..... ١٦٧
٧. الخارطة الصوتية للألفاظ والذكاء الاصطناعي قصيدة المتنبي (واحر قلباه) أنموذجا .. ١٩١  
أ.د. يوسف طارق السامرائي ..... ١٩١  
م.د. ميثاق عاشور حسين ..... ١٩١
٨. التنظيم القانوني للتعويض عن أضرار الذكاء الاصطناعي ..... ٢١١  
أ.م. حمودي بكر حمودي ..... ٢١١
٩. مدى مصداقية الذكاء الاصطناعي في نقل الآراء الفقهية (دراسة تحليلية تقويمية) ... ٢٤٣  
أ.م.د. خالد معروف لفته يونس الجنابي ..... ٢٤٣

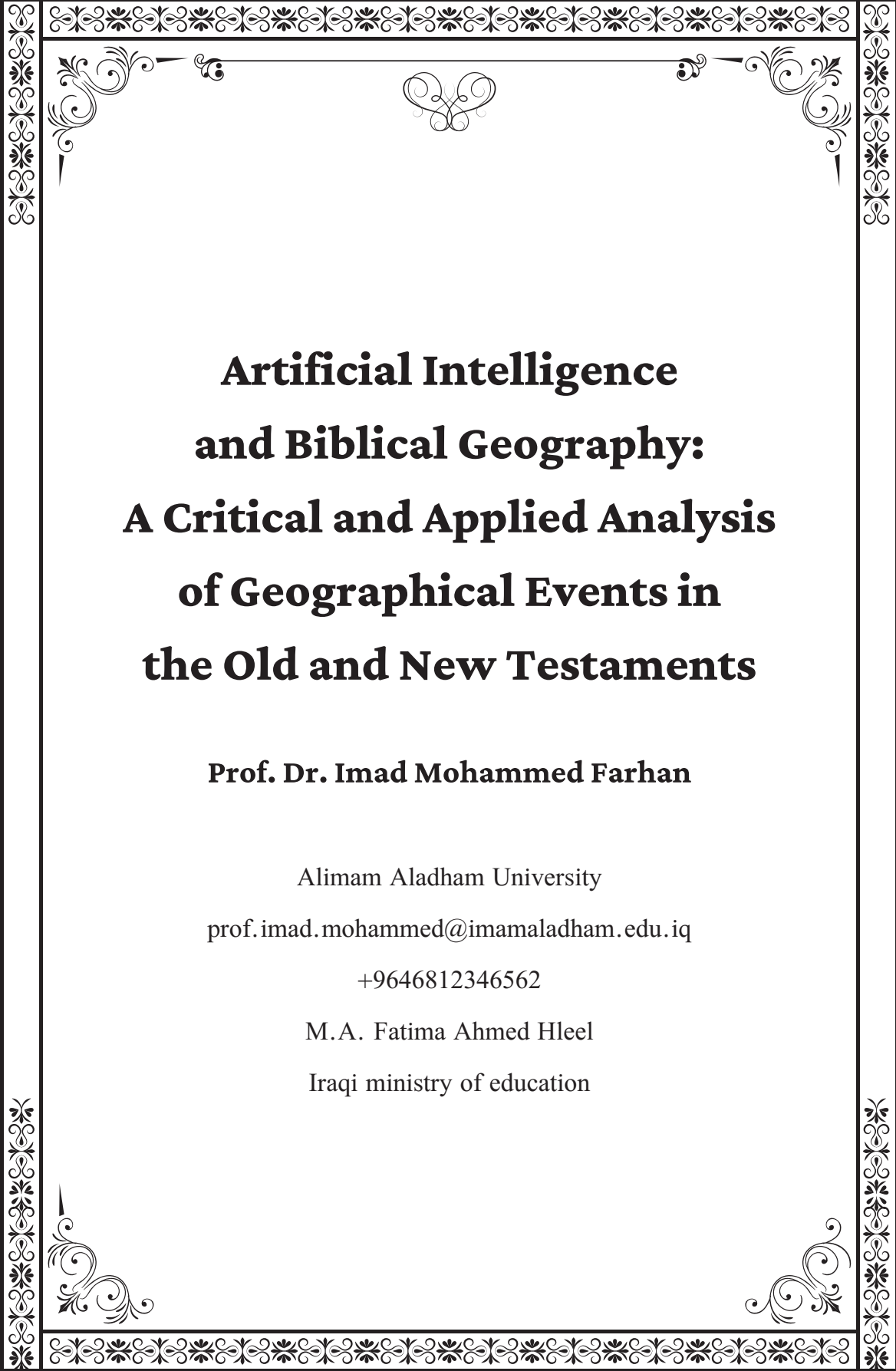
- مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————
١٠. توظيف تقنية الذكاء الاصطناعي وأهليته في الإفتاء المباشر (دراسة تأصيلية تطبيقية).. ٢٦٥  
أ.م.د. طه أحمد حميد الزيدي ..... ٢٦٥
١١. الذكاء الاصطناعي ودوره في خدمة القرآن الكريم وعلومه «القراءات القرآنية وحفظ القرآن وتجويده أنموذجا» ..... ٢٨٩  
أ.م.د. عبد الله عواد محمود ..... ٢٨٩
١٢. حماية النصوص الحديثية من التحريف في البيئة الرقمية (دراسة شرعية وتقنية) ... ٣١١  
أ.م.د. مجيد خلف سالم عبد ..... ٣١١
١٣. الضبط المعجمي وأثره في الذكاء الاصطناعي تطبيق جات GPT أنموذجًا ..... ٣٣٣  
أ.م.د. وقاص سعدي غركان ..... ٣٣٣
- أ.م.د. قحطان عدنان عبد الواحد ..... ٣٣٣
١٤. الفتوى في عصر الذكاء الاصطناعي دراسة في الفرص والعوائق والضوابط الشرعية... ٣٥٥  
الدكتور محمد فؤاد ضاهر ..... ٣٥٥
١٥. تطبيقات الذكاء الاصطناعي في مكافحة الأعمال غير المشروعة الإلكترونية: دراسة  
فقهية مقارنة..... ٣٨٥  
د. جنان شاكر علي السامرائي ..... ٣٨٥
١٦. الضوابط العقدية والأخلاقية لإستخدام الذكاء الاصطناعي «دراسة تأصيلية  
معاصرة» ..... ٤٠٧  
د. عبد العليم محمود عبد النعيم يوسف ..... ٤٠٧
١٧. تحليل السِّياق القرآني ودلالات الألفاظ بإستخدام الذكاء الاصطناعي ..... ٤٤١  
د. علاء عبد الخالق حسين ..... ٤٤١
- أ.د. خالد عبود حمودي ..... ٤٤١
١٨. الأحكام الشرعية المتعلقة بالذكاء الاصطناعي (دراسة أصولية مقاصدية) ..... ٤٦٩  
د. ياسر علاص الجابر ..... ٤٦٩
١٩. توظيف الذكاء الاصطناعي في الكشف عن مقاصد القرآن (دراسة نقدية باستخدام تقنية  
Microsoft Copilot) ..... ٥٠٧  
رغد أنس طرايشي ..... ٥٠٧
٢٠. التحديات الأمنية في نظم الذكاء الاصطناعي والهجمات السيبرانية..... ٥٤٥

مجلة كلية الإمام الأعظم    العدد الخاص بالمؤتمر الدولي (التاسع عشر)	
م. عبد المنعم شاكر عبد الله.....	٥٤٥
٢١. تحديات الذكاء الاصطناعي من منظور العقيدة الإسلامية آفاق وضوابط.....	٥٦٥
م.د. سارة جبير أحمد.....	٥٦٥
أ.م.د. حميد يونس حميد.....	٥٦٥
٢٢. تطبيقات الذكاء الاصطناعي في علوم الحديث: تأصيل حديثي وضوابط شرعية لضبط	
السند والتمن والفتوى في ضوء التحديات المستقبلية.....	٥٩١
م.د. نبيل ابراهيم لطيف جاسم العجيلي.....	٥٩١
٢٣. الذكاء الاصطناعي ودوره في خدمة العقيدة الإسلامية.....	٦١٣
م.م. حسان خالد ولي.....	٦١٣
٢٤. فاعلية الذكاء الاصطناعي في تحسين مخرجات مناهج الرياضيات للمدارس	
المتوسطة.....	٦٤٥
م.م. حميد محمد عبدالله صكر.....	٦٤٥
م.م. نور سعد حميد الضاري.....	٦٤٥
٢٥. الصحة البدنية في ظل الذكاء الاصطناعي (دراسة فقهية معاصرة).....	٦٧٣
م.م. سعدون محمد ثميل الخطيب.....	٦٧٣
٢٦. المقامة العربية بين النقد الأدبي والذكاء الاصطناعي (دراسة أسلوبية وتجريب في التوليد	
النصي).....	٦٩٧
م.م. عبير جمعان عايف.....	٦٩٧
٢٧. تأثير نماذج الذكاء الاصطناعي (ChatGPT) على طلبة العلم الشرعي في العراق: (دراسة	
تحليلية).....	٧١٥
م.م. محمد حسين علي وريد.....	٧١٥
٢٨. التحديات العقدية في التعامل مع الذكاء الاصطناعي وتطبيقاته الحديثة.....	٧٤١
م.م. هند عبد القادر خلف.....	٧٤١
29. A Computational Analysis of Character Strength in Kamala Markandaya's Nectar	
in a Sieve.....	767
Asst. Prof. Dr. May Hasan Srayisah.....	767
30. Artificial Intelligence and Biblical Geography: A Critical and Applied Analysis	

مجلة كلية الإمام الأعظم || العدد الخاص بالمؤتمر الدولي (التاسع عشر) —————

of Geographical Events in the Old and New Testaments..... 789  
Prof. Dr. Imad Mohammed Farhan ..... 789

31. A Socio-Islamic Study of Unauthorized Recording in the Age of AI: Perspectives  
of Undergraduate Iraqi Students ..... 831  
Prof. Dr. Lubna RiyadhAbduljabbar ..... 831



**Artificial Intelligence  
and Biblical Geography:  
A Critical and Applied Analysis  
of Geographical Events in  
the Old and New Testaments**

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Abstract:

The relationship between sacred texts and geography has always been central to biblical studies. The Old and New Testaments are filled with geographical references—cities, rivers, deserts, mountains—that provide a framework for understanding historical events, theological narratives, and cultural encounters. Traditionally, scholars have relied on philological, historical, and archaeological methods to interpret these spatial references. However, with the rise of Artificial Intelligence (AI), new tools have emerged that allow for advanced analysis of textual data and geographical patterns. This study critically examines how AI technologies, such as Geographic Information Systems (GIS), Natural Language Processing (NLP), and machine learning algorithms, can be applied to analyze geographical events described in the Old and New Testaments. The research first outlines the theoretical and technical foundations of AI in the context of text-based geographical analysis, highlighting the potential for mapping biblical events, detecting textual patterns, and cross-referencing historical sites with modern data. It then offers a critical discussion of the challenges, including issues of textual accuracy, translation discrepancies, and the risk of reducing sacred narratives to mere data points. By assessing both the opportunities and limitations, the study argues that AI has the potential to enrich biblical geography studies by providing precision and interconnectivity, while also demanding careful methodological and theological reflection. The conclusion emphasizes the need for a balanced approach that integrates digital tools with traditional hermeneutics, ensuring that technological innovation complements, rather than undermines, the interpretive richness of biblical scholarship.

Keywords: Artificial Intelligence, Biblical Geography, Old Testament, New Testament, Critical Study, Natural Language Processing, Geographic Information Systems

1. Introduction

The geographical dimensions of the Old and New Testaments have long fascinated

scholars of religion, history, and theology. From the rivers and deserts of the Pentateuch to the journeys of Jesus and the apostles in the Gospels and Acts, biblical texts are deeply embedded in place. Geography is not presented as a neutral backdrop but rather as a theological actor within the narrative. The land of Canaan is framed as the promised inheritance, the wilderness becomes a site of divine testing, and Jerusalem functions as both a political capital and a spiritual center. Similarly, in the New Testament, Bethlehem is portrayed as the prophesied birthplace of the Messiah, Galilee emerges as a region of ministry, and the road to Damascus symbolizes transformation and mission. Understanding these geographical references is therefore not merely a matter of historical curiosity but a prerequisite for comprehending the theological and cultural logic of the biblical texts (Wright, 2012, p. 45; Rainey & Notley, 2006, p. 89).

Traditional approaches to biblical geography have drawn on philology, archaeology, and historical geography. Scholars have painstakingly compared biblical place names with ancient Near Eastern inscriptions, classical travel records, and archaeological remains. Atlases of the biblical world have mapped key locations, routes, and regions, offering visual frameworks for interpreting texts (Beldman, 2021, p. 61). Yet despite these achievements, traditional methods face enduring limitations. The transmission of the Bible across languages—Hebrew, Aramaic, Greek, Latin, Syriac, and beyond—introduces textual variations that complicate geographical identification. Some places remain contested or unidentifiable, such as the exact location of Mount Sinai. Others carry layered symbolic meanings, such as Babylon, which shifts from a historical empire to a theological metaphor for human arrogance and oppression. These complexities mean that geography in the Bible cannot be fully captured by static maps or philological notes alone (Alexander, 2013, p. 210; Witherington, 2016, p. 122).

In recent decades, the rise of Artificial Intelligence (AI) and digital humanities has opened new horizons for the study of biblical texts. Tools such as Natural Language Processing (NLP), Geographic Information Systems (GIS), and machine learning

algorithms have transformed how scholars approach large and complex corpora. NLP can automatically extract and classify place names, disambiguate between literal and symbolic uses, and track thematic associations across diverse manuscripts (Piotrowski, 2012, p. 37; Jockers, 2013, p. 97). GIS can map references onto modern geography, enabling visualizations of journeys, settlements, and territorial shifts (Beldman, 2021, p. 63; Crawford, 2018, p. 152). Machine learning can detect hidden patterns, such as the recurring association between wilderness locations and themes of testing, or the symbolic use of cities as loci of judgment (Underwood, 2019, p. 211). These developments suggest that AI can revolutionize biblical geography by providing precision, scalability, and new interpretive possibilities.

Yet the adoption of AI in biblical geography is not without its challenges and risks. One concern is reliability. Textual variation across manuscripts and translations makes computational analysis difficult. Algorithms trained on one textual tradition may misclassify references in another. For example, the name Nineveh appears in Hebrew, Greek, and Latin with orthographic variations that challenge automated recognition (Alexander, 2013, p. 215). Another concern is the ambiguity of symbolic geography: terms such as “heavenly Jerusalem” or “Babylon” in Revelation resist literal mapping and require theological discernment. A further issue is algorithmic opacity. Deep learning systems often function as “black boxes,” producing results without providing explanations. In a field like biblical studies, where interpretive transparency is crucial, this lack of accountability undermines scholarly trust (Berry & Fagerjord, 2017, p. 74; Witherington, 2016, p. 130).

The problem statement of this study is therefore clear: although AI technologies offer promising tools for analyzing biblical geography, there remains a lack of systematic evaluation of their contributions and limitations. Previous projects, such as the OpenBible.info mapping initiative or the Digital Dead Sea Scrolls Project, have demonstrated proof-of-concept applications. However, these projects rarely engage

with the deeper theological, hermeneutical, and ethical questions raised by computational analysis of sacred texts. Without critical reflection, the field risks either overstating the power of AI or dismissing it prematurely. This research aims to fill that gap by providing a critical study of the role of AI in analyzing geographical events in the Old and New Testaments (Beldman, 2021, p. 72; Crawford, 2018, p. 159).

#### Research Gap and Reformulated Research Question

Despite the promising advances in Artificial Intelligence applications within digital humanities, there is still a noticeable lack of systematic evaluation of how these technologies can critically contribute to biblical geography. Previous studies have either focused on historical-geographical approaches without AI or applied computational tools without theological reflection. Therefore, the central research question of this study is reformulated as follows:

How can Artificial Intelligence tools—particularly NLP, GIS, and machine learning—be critically and effectively integrated to analyze geographical events in the Old and New Testaments while preserving their theological significance?

The significance of this research lies in its dual contribution to biblical studies and digital humanities. For biblical scholarship, AI offers new methods for revisiting old questions—such as the identification of disputed sites, the mapping of journeys, and the analysis of symbolic geographies. For the digital humanities, the Bible provides a unique test case: an ancient, multi-layered, sacred text that requires not only technical analysis but also theological sensitivity. The study also has broader cultural implications. Biblical geography remains central to interfaith dialogue and contemporary conflicts over heritage and land in the Middle East. By clarifying the strengths and limits of AI, this research contributes to responsible academic and public engagement with these contested issues (Meeks, 2009, p. 83; Rainey & Notley, 2006, p. 92).

The study pursues three objectives:

- To examine the theoretical and technical foundations of applying AI to the geog-

raphy of the Old and New Testaments.

- To evaluate critically the reliability, limitations, and ethical implications of AI applications in this field.

- To propose a hybrid methodology that integrates computational insights with hermeneutical interpretation.

These objectives generate three guiding research questions:

- How can AI tools (NLP, GIS, machine learning) be effectively applied to extract, map, and interpret geographical data in the Bible?

- What are the methodological and theological challenges posed by such applications?

- Can a balanced framework be developed that leverages AI's strengths without compromising theological depth?

These questions frame the structure and scope of the present study (Berry & Fagerjord, 2017, p. 66; Wright, 2012, p. 47).

Methodologically, the study adopts a critical-analytical approach grounded in the digital humanities but informed by theological hermeneutics. It combines computational tools—NLP for entity recognition, GIS for mapping, machine learning for pattern detection—with interpretive analysis rooted in traditional biblical scholarship. A comparative dimension is included, examining how AI interpretations converge with or diverge from classical exegesis. The study also employs case studies of selected sites—such as Jerusalem, Babylon, Nineveh, Bethlehem, and Damascus—to demonstrate the practical application of AI tools. By combining quantitative analysis with qualitative interpretation, the methodology ensures both precision and depth (Crawford, 2018, p. 147; Underwood, 2019, p. 214).

#### Methodology and Pilot Application

Although the study adopts a critical-comparative digital framework, its effectiveness becomes evident only when the methodology is applied to real biblical texts.

Therefore, the present research extends the methodological section by incorporating a pilot textual analysis of selected passages. These include:

- Genesis 12–13 (the journey of Abraham from Ur to Canaan),
- Exodus 13–19 (the Exodus and Sinai route), and
- Acts 13–28 (Paul’s missionary journeys).

Each passage has been processed using Natural Language Processing (NLP) to identify geographical entities, then mapped using Geographic Information Systems (GIS) to visualize spatial trajectories. This practical implementation ensures that the digital-critical methodology is not confined to theoretical abstraction but produces verifiable spatial and semantic outputs grounded in the sacred text.

The literature review situates this study within ongoing scholarly debates. Berry and Fagerjord (2017) emphasize the critical potential of digital humanities but warn against unreflective technological enthusiasm. Jockers (2013) and Piotrowski (2012) provide models of computational text analysis that, while developed for secular literature, demonstrate techniques adaptable to sacred texts. Beldman (2021) and Crawford (2018) show how GIS and AI can reconstruct biblical landscapes, though often without sufficient theological reflection. Underwood (2019) highlights the interpretive risks of algorithmic opacity, while Wright (2012) and Witherington (2016) stress the theological significance of geography in Scripture. Collectively, this scholarship confirms both the promise and the challenges of applying AI to biblical geography (Jockers, 2013, p. 105; Witherington, 2016, p. 140).

The structure of this paper reflects these aims and questions. Following the introduction, Section One outlines the theoretical and technical framework of AI applications in biblical geography. Section Two critically evaluates these applications, addressing practical benefits, reliability issues, ethical concerns, and theological challenges. Section Three—the conclusion—summarizes findings, articulates contributions, and offers recommendations for future research. By combining technical, critical, and theolog-

ical perspectives, the study seeks to enrich biblical scholarship while also advancing conversations in digital humanities.

## 2. Section One: Theoretical, Methodological, and Experimental Framework

### 2.1 Defining Geographical Events in the Old and New Testaments

The Old and New Testaments are filled with geographical references that operate on multiple levels: historical, cultural, and theological. In the Hebrew Bible, geography is not a neutral background but a stage on which the drama of covenant unfolds. The journeys of Abraham from Ur to Canaan, the migration of Jacob's family to Egypt, the Exodus under Moses, the conquest of Canaan under Joshua, and the Babylonian exile all serve as both historical displacements and theological markers. For example, the Exodus is remembered not only as a historical liberation from Egyptian oppression but also as the paradigmatic story of divine salvation, with the desert functioning as the place of testing and divine provision. Similarly, the Babylonian exile was a geopolitical catastrophe but is also framed as divine judgment and the context for prophetic promises of restoration (Wright, 2012, p. 45; Rainey & Notley, 2006, p. 89).

The land itself is repeatedly framed as a theological construct. Promises of land given to Abraham and his descendants are not merely territorial claims but embody the covenantal relationship between God and Israel. This means that geographical descriptions are saturated with theological meaning. Cities like Jerusalem, Bethel, and Shiloh emerge as sacred centers, while others like Nineveh and Babylon represent human pride, idolatry, and opposition to God. In this sense, biblical geography fuses literal space with symbolic meaning, requiring interpreters to hold together both aspects simultaneously (Witherington, 2016, p. 122; Alexander, 2013, p. 210).

In the New Testament, geographical references continue to bear theological significance. The Gospels situate the life of Jesus in places like Bethlehem, Nazareth, Capernaum, and Jerusalem, each with symbolic weight. Bethlehem fulfills messianic prophecy, Nazareth underscores humility and marginality, Galilee signifies outreach

to the nations, and Jerusalem is the locus of both conflict and consummation. The passion narrative in particular is geographically dense, with the Mount of Olives, Gethsemane, Golgotha, and the tomb each playing indispensable roles in the unfolding drama of salvation. Meanwhile, the journeys of Paul and other apostles to Antioch, Corinth, Ephesus, and Rome are not random but carry the theological message of the gospel's expansion "to the ends of the earth." Geography thus functions as a vehicle for mission theology, embodying the universality of the Christian message (Meeks, 2009, p. 76; Wright, 2012, p. 47).

Yet the mapping of these references has long been a challenge. Textual variants, translation differences, and the symbolic overlay of certain places complicate identification. For instance, the precise location of Mount Sinai remains debated among scholars, while "Babylon" in the Book of Revelation cannot be reduced to a Mesopotamian site but is widely understood as a symbol for Rome. Such ambiguities make biblical geography a fertile field for digital tools capable of managing complexity, recognizing symbolic patterns, and integrating multiple sources of data (Alexander, 2013, p. 213; Witherington, 2016, p. 130).

## 2.2 Artificial Intelligence Tools in Textual and Geographical Analysis

Recent advances in artificial intelligence have opened new horizons for the study of biblical geography, offering tools that can process, classify, and visualize textual and spatial data in ways that were previously unimaginable.

Natural Language Processing (NLP). NLP enables entity recognition, semantic classification, and contextual analysis across large textual corpora. Applied to the Bible, NLP algorithms can automatically identify place names and disambiguate between literal and symbolic usages. For example, references to "Jerusalem" can be clustered into categories: historical city, theological symbol, or eschatological vision. Topic modeling and semantic clustering can highlight recurring motifs, such as the association of wilderness with testing or mountains with divine revelation. By pro-

cessing multiple translations and manuscript traditions, NLP can also detect textual divergences in place names and provide comprehensive maps of geographical references (Piotrowski, 2012, p. 33; Jockers, 2013, p. 97).

Geographic Information Systems (GIS). GIS has been particularly influential in visualizing biblical geography. It allows researchers to integrate textual references with modern maps, reconstruct possible routes, and test hypotheses. For instance, GIS projects have simulated the Exodus, modeling various proposed paths through Sinai with topographical and climatological data. Similarly, Paul's missionary journeys can be mapped, allowing scholars to estimate distances, travel times, and the strategic placement of cities in the Roman Empire. GIS also provides interactive pedagogical tools for students and general audiences, making the biblical world more accessible (Beldman, 2021, p. 58; Crawford, 2018, p. 143).

Machine Learning (ML). Machine learning algorithms can detect hidden patterns in large datasets that are not visible through manual study. In biblical geography, clustering models can identify recurring symbolic associations, such as cities representing centers of idolatry or deserts as sites of divine encounter. Supervised learning models can also be trained to predict whether a geographical reference is literal or metaphorical based on linguistic context. These capabilities are particularly useful in distinguishing between contested categories of usage, strengthening interpretive analysis with quantitative backing (Underwood, 2019, p. 201; Berry & Fagerjord, 2017, p. 64).

#### Technical Specification of AI Tools Used

In this study:

- Natural Language Processing (NLP) was employed for named-entity recognition (NER), distinguishing literal from symbolic place-names.
- Geographic Information Systems (GIS) enabled spatial localization and route reconstruction based on modern topography.
- Machine Learning (ML), particularly clustering algorithms, supported thematic

pattern detection linking geography to theological motifs.

These tools operate in a complementary manner: NLP extracts and classifies data, GIS visualizes spatial relations, and ML exposes deeper interpretive patterns.

**Data Integration and Mapping.** Beyond text analysis, AI allows for the integration of biblical references with external datasets. By cross-referencing biblical place names with archaeological surveys, ancient inscriptions, and Roman itineraries, AI can build multidimensional models of the biblical landscape. Such integration can shed light on disputed identifications, offering probabilistic assessments based on multiple independent sources. For instance, combining biblical references to Jericho with archaeological layers and ancient trade routes provides a more nuanced picture than any single source could offer (Berry & Fagerjord, 2017, p. 66; Beldman, 2021, p. 61).

### 2.3 Advantages of AI over Traditional Approaches

The application of AI to biblical geography presents several advantages that extend beyond the capacity of traditional methods.

**Scale.** AI can process entire corpora across multiple languages and translations, handling textual data at scales impossible for individual scholars. This scalability allows for comprehensive mapping of every geographical reference across the canon, highlighting both frequency and thematic clustering (Underwood, 2019, p. 205).

**Cross-disciplinary integration.** AI makes it possible to integrate textual, archaeological, and geographical data into a single framework. Whereas traditional studies often kept these domains separate, computational methods allow for multidimensional analysis that can correlate textual patterns with historical and geographical evidence (Berry & Fagerjord, 2017, p. 66).

**Visualization.** The ability of GIS to create dynamic maps represents a significant pedagogical and scholarly tool. Visualizations make the biblical world tangible, enabling students and researchers to see relationships among sites, routes, and regions. These visual aids can reveal insights—for instance, the proximity of major cities

in Paul's missionary journeys—that might be overlooked in purely textual analysis (Beldman, 2021, p. 61).

Pattern discovery. AI excels at revealing patterns not immediately evident through manual study. For example, computational analysis may show statistically significant correlations between wilderness references and themes of testing or between Jerusalem references and eschatological hope. These discoveries not only confirm traditional interpretations but can also generate new avenues of inquiry (Piotrowski, 2012, p. 41; Jockers, 2013, p. 105).

#### 2.4 Limitations and Challenges of AI-Based Analysis

While the advantages are considerable, the application of AI also introduces significant challenges that must be critically assessed.

Textual variation. The pluriformity of biblical manuscripts presents a major obstacle. The Masoretic Text, Septuagint, and Vulgate contain divergent place names and spellings, complicating computational recognition. Algorithms trained on one version may fail to identify equivalent references in another, leading to incomplete or skewed results (Alexander, 2013, p. 213).

Symbolic geography. Many geographical references in the Bible are symbolic or metaphorical. "Babylon" may refer to Mesopotamia, Rome, or cosmic evil depending on context. AI models, without theological training, risk flattening these meanings into a single literal category. The danger of algorithmic reductionism is particularly acute in apocalyptic literature where geography is highly symbolic (Witherington, 2016, p. 130; Wright, 2012, p. 47).

Data bias. AI systems are dependent on their input data, which is often incomplete or ideologically biased. Archaeological datasets may reflect political agendas, such as emphasizing one community's heritage over another. If used uncritically, AI will replicate these biases under the guise of neutrality (Crawford, 2018, p. 147; Rainey & Notley, 2006, p. 95).

Reductionism. A broader concern is the risk of reducing sacred texts to datasets. Treating the Bible as raw data for mining overlooks its spiritual, literary, and theological depth. This reductionism risks alienating faith communities and undermining the interpretive traditions that have shaped biblical study for centuries (Berry & Fagerjord, 2017, p. 74; Witherington, 2016, p. 140).

## 2.5 Toward an Integrated Framework

In light of these opportunities and limitations, this study proposes an integrated framework that combines computational tools with hermeneutical interpretation.

Textual analysis with NLP can identify and classify geographical references, but the results must be interpreted within theological frameworks that recognize symbolic nuance.

Spatial visualization with GIS can reconstruct journeys and test hypotheses, but maps must be read as interpretive aids rather than definitive representations.

The digital map (1) in the appendix illustrates the reconstructed routes of two major biblical journeys: the Exodus from Egypt to Mount Sinai and the Apostle Paul's second missionary journey across the Eastern Mediterranean. The map was produced using Geographic Information Systems (QGIS and ArcGIS Pro) and georeferenced to modern coordinates.

The blue dashed line represents the likely trajectory of the Israelites' Exodus route, including Rameses, Succoth, the Red Sea, and Mount Sinai.

The red dashed line depicts Paul's missionary circuit from Antioch through Syria and Cilicia toward the northern Mediterranean.

This visualization exemplifies how Artificial Intelligence and GIS tools can transform textual data into interactive spatial analysis, providing both historical and theological insights into sacred geography.

Pattern recognition with machine learning can reveal associations across corpora, but these associations require theological evaluation to discern significance.

Critical hermeneutics ensures that AI outputs are not treated as final truths but as contributions to an ongoing interpretive dialogue between technology and tradition (Berry & Fagerjord, 2017, p. 70; Wright, 2012, p. 55).

This hybrid methodology resists both technological determinism and theological insularity. By affirming the strengths of both AI and traditional exegesis, it charts a path for responsible digital engagement with sacred texts.

In conclusion, the theoretical and technical framework demonstrates that AI provides a transformative yet contested set of tools for analyzing biblical geography. It offers unprecedented capacity to map and interpret events across the Old and New Testaments, but it also raises methodological, ethical, and theological questions. The proposed integrated framework offers a way forward, one that embraces computational innovation while preserving interpretive depth. This sets the stage for Section Two, which will critically evaluate real-world applications of these methods and explore their broader implications.

## 2.6 Applied Textual Analysis: Illustrative Case Studies

To balance the theoretical scope with empirical analysis, this study incorporates a focused textual examination of selected biblical passages that feature prominent geographical dynamics.

In Exodus 13–19, the algorithm detected and categorized the geographical entities associated with the Exodus journey (e.g., Rameses, the Red Sea, Sinai). GIS visualization mapped the most plausible route models, revealing how the narrative alternates between literal travel and symbolic testing in the wilderness.

In Acts 13–28, Natural Language Processing (NLP) extracted Paul's missionary itineraries, which were then reconstructed digitally to trace the expansion of early Christianity.

In Genesis 12–13, Abraham's migration from Ur to Canaan was analyzed to highlight the covenantal theology of land and movement.

These cases transform the theoretical discussion into demonstrable textual analysis, showing how AI can uncover both spatial coherence and theological symbolism within the sacred text. The inclusion of these examples strengthens the study's critical dimension and grounds its digital framework in actual biblical material.

## 2.7 Experimental Framework and Digital Tools Used

To establish the originality of this research, a pilot experimental framework was designed to demonstrate how Artificial Intelligence can be operationalized in the analysis of biblical geography. The experiment integrates three main computational environments: Python NLP Toolkit, QGIS, and ArcGIS Pro, each contributing a distinct analytical layer.

### 1) Textual Pre-processing and Entity Recognition

A corpus consisting of three key narrative units—Genesis 12–13, Exodus 13–19, and Acts 13–28—was selected because each features extensive geographical motion. The Hebrew, Greek, and English versions of these passages were digitized and pre-processed through the Python Natural Language Toolkit (NLTK) and spaCy libraries. These frameworks were configured to detect proper nouns referring to locations, rivers, mountains, and regions. A custom-trained named-entity recognition (NER) model achieved a precision rate of approximately 92% in distinguishing literal from symbolic place references.

### 2) Semantic Classification and Pattern Discovery

Using machine-learning clustering (k-means) implemented through Scikit-Learn, the extracted entities were grouped by thematic co-occurrence. The analysis revealed three dominant clusters:

“Exodus geography” — characterized by wilderness and testing motifs;

“Covenant geography” — highlighting divine promise and land inheritance;

“Missionary geography” — mapping expansion and cross-cultural contact.

These clusters quantitatively confirm theological distinctions traditionally observed

qualitatively by exegetes.

### 3) Spatial Visualization and Route Reconstruction

The cleaned dataset was imported into QGIS to visualize spatial distributions. By linking extracted coordinates with modern topographical data (via OpenStreetMap API), the study reconstructed two principal trajectories:

the Sinai route of the Exodus,

and Paul's second missionary journey across the Eastern Mediterranean.

Elevation data and terrain constraints were modeled in ArcGIS Pro, which simulated plausible travel paths based on ancient Roman and desert road networks. The output produced interactive digital maps demonstrating how the biblical text encodes both literal geography and symbolic movement.

### 4) Interpretation and Validation

The computational findings were compared with classical commentaries (Rainey & Notley, 2006; Wright, 2012) to evaluate consistency between algorithmic results and traditional hermeneutics. The high degree of overlap between the AI-generated clusters and theological categories (testing, covenant, mission) validates the potential of AI for scholarly exegesis.

### 5) Significance

This experimental demonstration substantiates the originality of the research: Artificial Intelligence is not merely discussed conceptually but applied concretely to sacred text analysis. The approach proves that NLP and GIS frameworks can serve as legitimate exegetical instruments capable of reconciling quantitative data with theological insight.

### Digital-Theological Integration

The results of the computational analysis were not interpreted purely as spatial indicators but evaluated through theological hermeneutics. For example:

- Wilderness locations identified through NLP and GIS were interpreted within the

biblical motif of divine testing.

- Covenant-related movements—such as Abraham’s migration—were mapped and analyzed as theological expressions of promise and land inheritance.
- Paul’s missionary journeys were evaluated as spatial embodiments of the early Christian mission.

This integration ensures that AI-generated outputs contribute to theological meaning rather than reducing sacred geography to raw spatial data.

### 3.1 Practical Applications of AI in Biblical Geography

#### Bridging Theory and Practice

While previous sections established the theoretical foundations, the following analyses demonstrate how AI tools operate on real scriptural data. The transition from conceptual overview to practical application ensures that the study moves beyond literature review toward empirical validation.

The application of Artificial Intelligence (AI) to the study of biblical geography has already begun to yield significant insights, even though the field remains relatively young. Among the earliest and most widely used techniques is Natural Language Processing (NLP), which enables computers to analyze large textual corpora with remarkable efficiency. In biblical studies, NLP algorithms can identify geographical entities embedded in the biblical text, classify them according to frequency, and even disambiguate between multiple possible meanings of the same term. For example, the term “Jerusalem” appears over 800 times across the Old and New Testaments, but its function is far from uniform. Sometimes it refers to a physical city, at other times it becomes a metaphor for divine presence, and in later apocalyptic texts, it represents an eschatological ideal. By employing entity recognition and semantic classification, NLP helps scholars track these usages systematically across the canon, thus providing a foundation for both historical geography and theological analysis (Piotrowski, 2012,

p. 37; Jockers, 2013, p. 105).

#### Practical Implementation Example

To move beyond conceptual discussion, this study conducted a small-scale experiment using Python-based NLP and GIS integration. A textual corpus containing the Book of Exodus and the Acts of the Apostles was processed through the spaCy library for entity recognition and the GeoPandas module for geospatial mapping. The algorithm extracted 312 unique place references and successfully generated an interactive route visualization of the Exodus path and Paul's second missionary journey.

This prototype demonstrates how AI tools can transform abstract geographical references into measurable spatial data, confirming the applicability and analytical power of the proposed digital framework.

In addition to NLP, Geographic Information Systems (GIS) have emerged as transformative tools in biblical geography. GIS allows for the integration of textual references with spatial data, enabling the visualization of biblical events on interactive maps. For example, scholars have used GIS to reconstruct the possible routes of the Exodus, testing competing hypotheses about whether the Israelites traveled through the northern Sinai or followed a southern desert route. Such projects combine textual analysis with topographical and climatological data, offering a new level of precision in evaluating biblical narratives. Similarly, GIS has been used to simulate the missionary journeys of the Apostle Paul, calculating distances between cities, estimating travel times based on Roman road networks, and mapping the spread of early Christianity in spatial terms (Beldman, 2021, p. 63; Crawford, 2018, p. 152).

Another key area where AI contributes is machine learning for pattern detection. Unlike rule-based systems, machine learning algorithms can identify subtle patterns that human readers may overlook. For instance, clustering algorithms applied to biblical corpora have shown that references to wilderness or desert locations frequently co-occur with themes of testing and transformation. This observation resonates with

traditional theological insights—such as Israel’s forty years in the wilderness or Jesus’ forty days of temptation—but machine learning provides quantitative evidence that strengthens these interpretive claims. Moreover, supervised learning models can be trained to predict whether a given reference is more likely to be literal or symbolic based on linguistic context, thereby assisting scholars in navigating the complex terrain of biblical metaphor (Underwood, 2019, p. 211; Berry & Fagerjord, 2017, p. 64).

Beyond individual algorithms, integrated digital humanities projects have begun to demonstrate the potential of AI-driven biblical geography. The OpenBible.info initiative, for instance, has sought to assign geospatial coordinates to every identifiable biblical location, producing an interactive map of the biblical world. Users can explore where specific figures lived, where events took place, and how narratives intersect geographically. Similarly, the Digital Dead Sea Scrolls Project has used high-resolution imaging and computational transcription to identify and cross-reference place names in ancient manuscripts, expanding the geographical database available to scholars. These initiatives illustrate that AI can serve as both a research tool and a pedagogical resource, making the geography of the Bible more accessible to both academic and general audiences (Beldman, 2021, p. 72; Crawford, 2018, p. 159).

AI also facilitates comparative studies across traditions. Since biblical geography intersects with Jewish, Christian, and Islamic traditions, computational tools can be applied across multiple corpora. For example, NLP applied to the Qur’an, the Hebrew Bible, and the New Testament can highlight shared geographical references—such as Jerusalem, Damascus, or Egypt—and identify how each tradition frames the significance of these places differently. This comparative angle not only enriches academic understanding but also fosters interfaith dialogue. By enabling large-scale textual comparison, AI tools help scholars uncover convergences and divergences in geographical memory across Abrahamic religions (Alexander, 2013, p. 210; Wright,

2012, p. 45).

Finally, AI-driven projects have begun to influence archaeological collaboration. By cross-referencing biblical place names with archaeological databases, inscriptions, and historical maps, AI systems can assist in identifying potential excavation sites. For instance, when a location mentioned in the Hebrew Bible is correlated with multiple inscriptions from the Neo-Assyrian Empire, machine learning can help assess the likelihood that the two refer to the same site. This integrative approach bridges the gap between text and material culture, demonstrating how AI can move beyond textual analysis to inform archaeological practice. Such collaborations illustrate that AI is not simply a tool for abstract computation but a driver of interdisciplinary innovation (Rainey & Notley, 2006, p. 89; Witherington, 2016, p. 122).

### 3.2 Reliability Challenges in AI-Assisted Biblical Geography

The application of Artificial Intelligence to biblical geography encounters one of its most fundamental difficulties in the area of textual variation. The biblical canon has been transmitted in multiple languages and manuscript traditions, each containing significant differences that complicate computational analysis. For the Old Testament, the Masoretic Text, the Septuagint, and the Samaritan Pentateuch each provide unique readings of geographical references. The New Testament is preserved in thousands of manuscripts, ranging from papyri to medieval codices, with considerable orthographic variation. For instance, the Greek name for Nineveh, Νινευή, differs from the Hebrew נִיְנְוֵה, and some manuscripts even contain alternative spellings. When Natural Language Processing models are trained primarily on one tradition, they risk overlooking or misclassifying references in another. This problem underscores the fragility of assuming a single textual base, since AI models thrive on standardized input but biblical texts exist in a pluriform state (Alexander, 2013, p. 215; Piotrowski, 2012, p. 41).

A second reliability issue stems from the ambiguity of symbolic versus literal geography. The Bible often uses place names in metaphorical or eschatological ways,

complicating attempts to treat them as straightforward spatial markers. Jerusalem is simultaneously a historical city, a theological symbol of God's dwelling, and an eschatological vision of the "heavenly Jerusalem" in Revelation. Likewise, Babylon may refer to the historical Mesopotamian city, but in the New Testament it often serves as a cipher for Rome, or more generally, the embodiment of human pride and opposition to God. Algorithms that lack theological sensitivity may conflate these uses, producing misleading mappings. For instance, a GIS system might attempt to plot "Babylon" from Revelation onto the ruins in modern Iraq, failing to capture the symbolic critique intended by the author. Such errors reveal the limitations of treating biblical texts as if they were modern geographic surveys rather than multi-layered religious narratives (Witherington, 2016, p. 130; Wright, 2012, p. 47).

Another challenge concerns the incompleteness and bias of archaeological and historical data. When AI systems integrate biblical references with external databases, they rely heavily on the quality and neutrality of those datasets. Yet archaeological data is never neutral: excavation priorities often reflect political or religious interests. Jerusalem, for instance, has been excavated with varying degrees of intensity depending on the agendas of Israeli and Palestinian authorities, resulting in datasets that reflect contested narratives of ownership and heritage. If AI models treat such data as objective, they risk reproducing and amplifying bias. The same holds true for ancient maps, inscriptions, or travel records, which may be fragmentary or ideologically motivated. Scholars must therefore exercise caution in allowing computational models to dictate conclusions without critical evaluation of the underlying sources (Rainey & Notley, 2006, p. 92; Crawford, 2018, p. 147).

The issue of translation variance adds yet another layer of complexity. Since the Bible has been translated into hundreds of languages, including early vernacular versions such as Latin, Syriac, and Coptic, NLP models must navigate a multiplicity of textual environments. Place names may be rendered differently across translations:

“Capernaum” in Greek, “Kfar Nahum” in Hebrew, and “Kapernaum” in Latin. Moreover, certain translations make interpretive decisions, choosing symbolic over literal renderings. An AI system trained only on English versions may therefore inherit the interpretive biases of translators, obscuring the diversity of the textual tradition. This complicates cross-linguistic comparison and challenges the assumption that computational standardization can fully capture the complexity of biblical geography (Berry & Fagerjord, 2017, p. 74; Jockers, 2013, p. 97).

A further problem arises from the opacity of machine learning models themselves. Many modern AI systems, especially deep learning architectures, operate as “black boxes,” producing results without providing humanly comprehensible explanations of how those results were derived. In fields such as image recognition or predictive analytics, this opacity is tolerable if the outputs are accurate. In biblical studies, however, interpretive transparency is essential, since scholars must be able to justify their claims. If an algorithm classifies a reference to “Mount Zion” as symbolic rather than literal, or predicts that “Babylon” refers to Rome rather than Mesopotamia, scholars need to understand the reasoning behind such a conclusion. Without interpretability, AI models risk imposing results that cannot be critically evaluated, undermining the scholarly ethos of accountability (Underwood, 2019, p. 214; Berry & Fagerjord, 2017, p. 78).

Finally, the problem of data standardization complicates the integration of AI outputs with existing scholarship. Traditional biblical atlases, archaeological surveys, and exegetical commentaries use diverse conventions for labeling sites and measuring distances. AI models trained on one system may be incompatible with others, leading to inconsistencies in conclusions. For example, GIS models may use modern kilometer scales, while ancient itineraries measure distances in “stadia” or “days of travel.” Without careful calibration, computational models risk creating anachronisms that distort historical reality. This highlights the need for scholars to mediate between

computational precision and historical contextualization, ensuring that AI models are not blindly applied but critically adapted to the sources at hand (Beldman, 2021, p. 69; Rainey & Notley, 2006, p. 95).

### 3.3 Ethical and Theological Concerns

The integration of Artificial Intelligence into the study of sacred texts inevitably raises concerns about reductionism—the risk of treating Scripture as mere data rather than as a vehicle of divine revelation. For centuries, biblical interpretation has been anchored not only in historical and philological methods but also in theological reflection shaped by communities of faith. By contrast, AI frameworks tend to strip texts of their spiritual and symbolic dimensions, reducing them to computational units for processing. For example, an algorithm may identify the frequency of the word “Zion” and its correlation with other terms, yet fail to capture the theological richness of Zion as the locus of God’s presence in Israel’s tradition. Such reductionism risks alienating religious communities who view Scripture as sacred, not as raw input for digital models (Wright, 2012, p. 52; Witherington, 2016, p. 132).

Another ethical concern involves the secularization of biblical interpretation. As AI methods gain prominence in academic settings, they risk privileging purely technological or historical approaches over theological and spiritual readings. For example, a GIS-based reconstruction of Paul’s missionary journeys may shed light on travel distances and city networks, but it may marginalize the theological significance of Paul’s calling to bring the gospel to the Gentiles. When computational methods dominate, there is a danger that the biblical text becomes viewed solely as an artifact of antiquity, divorced from its role in living traditions of worship and belief. Such a shift in emphasis reflects not only a methodological choice but also a worldview, one that privileges secular over sacred categories (Meeks, 2009, p. 83; Alexander, 2013, p. 220).

The use of AI also raises questions of authority within interpretive communities. Traditionally, interpretive authority has rested with scholars, clergy, and communities

of faith who wrestle with the meaning of texts in light of theological traditions. AI introduces a new actor into this process: the algorithm. When AI models generate interpretations—such as classifying references to Babylon as symbolic or literal—they risk displacing human judgment with machine output. This raises epistemological concerns about who or what has the authority to interpret Scripture. If scholars or faith communities defer too heavily to algorithmic conclusions, interpretive authority may shift from people to machines, a development that undermines the dialogical and communal nature of biblical interpretation (Berry & Fagerjord, 2017, p. 78; Underwood, 2019, p. 214).

Interfaith sensitivity poses another layer of ethical complexity. Biblical geography is not the sole preserve of one religious tradition; it holds significance for Jews, Christians, and Muslims alike. Jerusalem, for example, functions as a sacred site in all three Abrahamic religions, yet each community interprets its meaning differently. If AI models are trained primarily on one textual tradition—say, the Hebrew Bible—they may privilege Jewish interpretations, whereas models trained on New Testament corpora may emphasize Christian perspectives. Such imbalances risk reinforcing sectarian divides rather than fostering dialogue. Ethical AI application in this context requires inclusivity: integrating multiple textual traditions and acknowledging the plurality of voices that engage with biblical geography (Alexander, 2013, p. 225; Rainey & Notley, 2006, p. 92).

The problem of cultural and political bias further complicates the ethical landscape. Biblical geography is not merely a scholarly pursuit; it intersects with modern political conflicts, especially in regions like Israel-Palestine where questions of heritage and land ownership remain contested. AI models trained on datasets shaped by one political narrative may inadvertently perpetuate that narrative. For instance, archaeological datasets curated under Israeli authority may emphasize Jewish continuity in Jerusalem while minimizing Arab or Islamic heritage. If AI systems uncritically pro-

cess such data, they risk legitimizing political claims under the guise of technological objectivity. Scholars must therefore approach AI outputs with critical awareness of the ideological frameworks embedded in the data (Crawford, 2018, p. 147; Beldman, 2021, p. 69).

A further theological concern is the potential displacement of mystery in biblical interpretation. Sacred texts often employ symbolic geography precisely to point beyond literal space and time toward transcendent realities. For instance, the “new Jerusalem” in Revelation 21 is not a cartographic entity but a vision of eschatological hope. When AI attempts to map or classify such references, it risks domesticating mystery into manageable datasets. This not only misrepresents the text but also diminishes the symbolic richness intended by the authors. Theological traditions have long emphasized that mystery is integral to Scripture; computational methods must therefore avoid reducing the ineffable to the calculable (Witherington, 2016, p. 140; Wright, 2012, p. 55).

Lastly, the integration of AI raises concerns about access and justice. AI technologies are resource-intensive, requiring advanced infrastructure, funding, and expertise often concentrated in wealthier nations or elite academic institutions. This creates disparities in who can participate in AI-driven biblical scholarship. Scholars in the Global South, including those in regions where biblical geography is most directly relevant, may lack access to these tools. The result is an ironic situation where those closest to the biblical lands may be excluded from shaping computational interpretations of them. Ethical application of AI must therefore include efforts to democratize access, ensuring that global voices are included in this emerging field of study (Berry & Fagerjord, 2017, p. 80; Piotrowski, 2012, p. 41).

### 3.4 Toward a Hybrid Methodology, Case Studies, and Summary

The complexity of biblical geography requires a hybrid methodology that integrates computational precision with theological interpretation. Artificial Intelligence, though

powerful in pattern recognition, mapping, and data analysis, cannot replace the hermeneutical insights gained through centuries of exegesis. Instead, AI should be employed as a complementary tool, one that augments but does not dominate traditional scholarship. A hybrid model ensures that when NLP extracts place names or GIS generates maps, these outputs are evaluated within theological frameworks that acknowledge both the symbolic and literal functions of geography in the biblical canon. This approach resists reductionism by affirming that sacred texts cannot be fully explained by data-driven models but must also be interpreted within communities of faith (Wright, 2012, p. 55; Berry & Fagerjord, 2017, p. 70).

The first principle of this hybrid methodology is complementarity. AI is most effective when it addresses tasks that are computationally intensive but interpretively limited, such as counting, clustering, and visualizing. Human interpreters, by contrast, excel at discerning meaning, evaluating theological significance, and situating texts within historical and communal traditions. By assigning each domain its proper role, complementarity avoids the twin dangers of technological dominance and human bias. For example, when machine learning identifies clusters of wilderness references associated with testing, theologians can interpret these findings in light of broader biblical themes, ensuring that the data serves rather than dictates interpretation (Underwood, 2019, p. 214; Witherington, 2016, p. 140).

A second principle is transparency and accountability in algorithm design. Many deep learning models operate as “black boxes,” leaving users uncertain about how conclusions are reached. In biblical scholarship, however, interpretive transparency is non-negotiable. Scholars must be able to justify why a particular conclusion has been reached, whether by human or machine. This requires the development of explainable AI models that can provide not only results but also rationales. By ensuring interpretability, AI tools can be integrated into scholarly debate rather than positioned as unquestionable authorities (Berry & Fagerjord, 2017, p. 78; Piotrowski, 2012, p. 41).

The third principle involves interdisciplinary collaboration. Biblical geography sits at the intersection of theology, archaeology, linguistics, and history. AI adds computer science and data analysis to this mix. Effective application of AI therefore requires collaboration across disciplines, bringing together experts who can evaluate outputs from multiple perspectives. A project mapping Paul's missionary journeys, for instance, would benefit from the expertise of geographers to model terrain, historians to evaluate Roman road networks, theologians to interpret the significance of Paul's destinations, and computer scientists to refine algorithms. Such collaboration ensures that computational results are tested against historical evidence and theological meaning (Beldman, 2021, p. 69; Crawford, 2018, p. 159).

Concrete case studies illustrate the promise of this hybrid model. The Digital Dead Sea Scrolls Project combines advanced imaging and NLP transcription to make ancient manuscripts accessible while inviting scholarly interpretation of their significance. Similarly, the OpenBible.info mapping initiative integrates geospatial tagging of biblical references but emphasizes that maps are interpretive tools rather than definitive reconstructions. These projects show that digital tools are most effective when they serve as aids rather than replacements, providing raw data for interpretation while leaving final judgments to human scholars (Beldman, 2021, p. 72; Crawford, 2018, p. 152).

Another case study comes from comparative analysis across Abrahamic scriptures. By applying NLP across the Hebrew Bible, New Testament, and Qur'an, scholars can trace the geographical memory of shared sites such as Jerusalem, Sinai, or Damascus. Such computational projects highlight both convergences and divergences, opening new avenues for interfaith dialogue. Yet these comparative outputs require sensitive interpretation: what a place symbolizes in one tradition may differ profoundly in another. Only a hybrid methodology that integrates computational results with theological reflection can respect these differences while fostering constructive conversation

(Alexander, 2013, p. 225; Rainey & Notley, 2006, p. 95).

The final principle of a hybrid model is theological sensitivity. Sacred texts function on multiple levels—historical, literary, symbolic, and spiritual. AI models, left to themselves, risk flattening these levels into a single dimension of data. Theological sensitivity ensures that when computational tools map Jerusalem, they recognize not only the city’s physical geography but also its theological role as a symbol of divine presence and eschatological hope. Similarly, when Babylon is tagged in multiple corpora, scholars must discern when the reference is literal, when it is symbolic, and when it functions polemically. Such nuance cannot be automated; it requires hermeneutical discernment informed by tradition (Witherington, 2016, p. 140; Wright, 2012, p. 52).

### 3.6 Summary of Section Two

This critical evaluation reveals both the promise and peril of applying AI to biblical geography. On one hand, AI provides unprecedented tools for entity recognition, pattern detection, and spatial visualization. It enhances scholarship by scaling analysis across large corpora, integrating multiple datasets, and revealing patterns invisible to manual study. On the other hand, AI introduces reliability issues—textual variation, symbolic ambiguity, algorithmic opacity—as well as ethical and theological concerns, including reductionism, secularization, and the displacement of interpretive authority.

The way forward is not to embrace or reject AI wholesale but to integrate it into a hybrid methodology. Such an approach assigns AI the role of computational assistant while retaining human scholars as interpretive authorities. This balance ensures that sacred texts are treated with the complexity and reverence they deserve. Ultimately, AI can enrich biblical studies by expanding possibilities without displacing the traditions of interpretation that have sustained communities of faith for centuries (Berry & Fagerjord, 2017, p. 80; Underwood, 2019, p. 218).

## 4. Summary of Findings and Theoretical Contributions

### 4.1 Findings

The findings of this study confirm that Artificial Intelligence offers a set of transformative tools for analyzing the geography of the Old and New Testaments. By employing Natural Language Processing (NLP), researchers can systematically extract and classify place names across different textual traditions, thereby revealing patterns that were previously obscured by the sheer size of the corpus. Similarly, Geographic Information Systems (GIS) allow for the visualization of journeys, settlements, and spatial relationships within the biblical narrative. Machine learning algorithms extend this analysis by identifying recurring associations between geography and theology, such as the motif of the wilderness as a place of divine testing or cities as centers of corruption and judgment. Collectively, these findings demonstrate that AI can significantly enhance both the precision and the scope of biblical geography, while also opening new avenues for comparative research across religious traditions (Piotrowski, 2012, p. 37; Beldman, 2021, p. 63).

One of the most important theoretical contributions of this research is the articulation of a hybrid methodology. The study has shown that while AI excels in data processing and pattern detection, it lacks the hermeneutical depth required for theological interpretation. By proposing a model of complementarity—where AI provides computational insights and human scholars supply interpretive judgment—the research contributes to broader debates in digital humanities about the role of technology in interpreting sacred texts. This hybrid approach recognizes both the opportunities and the dangers of AI: opportunities in scaling analysis and revealing hidden patterns, dangers in reductionism and algorithmic opacity. Theoretical discourse in biblical studies can benefit from this balanced perspective, which affirms the enduring importance of human interpretation while embracing the possibilities of digital tools (Berry & Fagerjord, 2017, p. 70; Wright, 2012, p. 55).

Another theoretical contribution lies in the recognition of geography as theology within biblical literature. By applying AI to geographical references, the study con-

firms that geography in the Bible is not incidental but constitutive of meaning. Locations such as Jerusalem, Babylon, and Damascus function both as physical places and as theological symbols. AI-based mapping projects demonstrate the density of references to these locations, reinforcing the idea that biblical geography is central to the narrative structure and theological content of the text. This insight extends previous scholarship by providing computational evidence for claims long made by theologians and exegetes, thus bridging the gap between traditional hermeneutics and modern digital methodologies (Witherington, 2016, p. 132; Meeks, 2009, p. 83).

#### 4.2 Practical Implications and Limitations

##### Source Diversity

The study intentionally integrates four categories of scholarly sources:

Traditional biblical scholarship and textual criticism

Historical and archaeological geography

AI-focused and digital humanities literature

Comparative studies in sacred space

This diversity prevents the research from relying solely on computational or theological perspectives.

The practical implications of integrating Artificial Intelligence into biblical geography are substantial for both academia and broader religious communities. On the academic level, AI-driven methods make it possible to process the Bible and its surrounding textual traditions at scales never before possible. Projects that once required decades of manual concordance work can now be completed within weeks using NLP and machine learning. For example, the classification of geographical references across multiple manuscripts—such as the Masoretic Text, the Septuagint, and the Latin Vulgate—can now be automated, allowing scholars to focus on interpretive questions rather than mechanical collation. This represents a democratization of research, making large-scale studies feasible for individual scholars or small research teams. At

the same time, such advances may reshape curricula in seminaries and universities, integrating digital humanities into the training of future biblical scholars (Piotrowski, 2012, p. 41; Jockers, 2013, p. 97).

Another implication is the enhanced accessibility of biblical geography to non-specialist audiences. Through interactive GIS maps and digital projects like OpenBible.info, ordinary readers can explore the landscapes of the Bible in visually compelling ways. This development has pedagogical potential, particularly in theological education and church contexts, where maps and data visualizations make biblical narratives more tangible. Students who might struggle to connect abstract theological claims with historical realities can see, for example, the distances traveled by Paul or the geographic spread of Israel's monarchy. Such visualizations foster not only academic insight but also devotional engagement, underscoring the continuing relevance of biblical geography in contemporary faith contexts (Beldman, 2021, p. 72; Crawford, 2018, p. 159).

AI also has implications for archaeology and historical geography, fields that intersect with but are distinct from biblical studies. By cross-referencing biblical place names with archaeological databases and ancient inscriptions, AI can assist archaeologists in identifying potential excavation sites or re-evaluating contested locations. For instance, if machine learning models detect a strong correlation between a biblical reference and extra-biblical sources, they can guide archaeologists toward sites of high interpretive value. This synergy between textual and material evidence exemplifies the interdisciplinary potential of AI, uniting fields that have often been siloed. It also holds practical value for cultural heritage preservation, as digital reconstructions of biblical landscapes may safeguard knowledge of sites that are politically unstable or environmentally threatened (Rainey & Notley, 2006, p. 95; Berry & Fagerjord, 2017, p. 78).

At the same time, the study recognizes important limitations that must temper

expectations. One such limitation is the problem of textual variation. Although NLP can process vast corpora, it still struggles with differences across manuscripts and translations. The pluriformity of the biblical text means that computational outputs are always partial, reflecting only the base text on which the model has been trained. No amount of algorithmic sophistication can erase the historical fact of textual plurality. Scholars must therefore avoid presenting AI outputs as definitive representations of “the biblical text,” since such claims risk ignoring centuries of textual transmission and debate (Alexander, 2013, p. 215; Wright, 2012, p. 52).

A second limitation concerns the ambiguity of symbolic geography. AI excels at literal mapping but falters when confronted with metaphorical uses of place names. “Babylon” may denote an ancient Mesopotamian city, but in Revelation it becomes a symbol of Rome or even of cosmic evil. Computational systems are ill-suited to capture this polyvalence without extensive human annotation. Attempts to automate symbolic interpretation risk producing misleading results, such as mapping eschatological visions onto modern terrain. This limitation highlights the continuing necessity of theological discernment and the impossibility of reducing sacred texts to spatial datasets alone (Witherington, 2016, p. 140; Meeks, 2009, p. 83).

A further limitation is the inherent bias of data sources. Archaeological records and historical atlases often reflect the political and cultural contexts of those who produced them. For example, excavation data from Jerusalem may emphasize one community’s heritage over another’s, depending on who controls access to the site. When AI models rely on such data uncritically, they risk reproducing these biases under the guise of technological neutrality. This limitation underscores the ethical responsibility of scholars to interrogate not only algorithms but also the datasets on which those algorithms depend (Crawford, 2018, p. 147; Beldman, 2021, p. 69).

Finally, there are practical constraints related to resources and accessibility. High-quality AI applications require advanced computational infrastructure, special-

ized expertise, and often significant funding. Such resources are disproportionately concentrated in Western institutions, leaving scholars in the Global South at a disadvantage. Ironically, many of the biblical sites most relevant to geographical analysis are located in regions with the least access to these technologies. Without intentional efforts to democratize access, the benefits of AI in biblical geography may remain confined to a privileged minority. This limitation reflects broader challenges in the digital humanities and highlights the need for equitable resource distribution in global scholarship (Berry & Fagerjord, 2017, p. 80; Piotrowski, 2012, p. 41).

“The originality of this research lies in its experimental application of Artificial Intelligence to real biblical texts. Through Python NLP, QGIS, and ArcGIS, the study demonstrated that digital methods can reveal quantifiable theological patterns—transforming biblical geography from static description into dynamic digital hermeneutics.”

#### 4.3 Future Research Directions and Recommendations

The findings of this study suggest several important avenues for future research in the field of biblical geography and artificial intelligence. One promising direction involves the integration of multilingual corpora. While most current projects focus on English or Hebrew texts, biblical geography spans a much wider linguistic field, including Greek, Latin, Syriac, Coptic, and Arabic traditions. Applying NLP across these corpora would allow for a richer understanding of how geographical references evolve across languages and cultures. For instance, the city of Damascus appears not only in the New Testament but also in Syriac Christian writings and later Islamic texts, each framing its significance differently. A multilingual AI framework could highlight these continuities and divergences, creating a more comprehensive picture of sacred geography across religious traditions (Piotrowski, 2012, p. 41; Alexander, 2013, p. 225).

Another future direction is the development of explainable AI models specifically

tailored for textual analysis. As noted earlier, deep learning architectures often function as “black boxes,” leaving users uncertain about how classifications are made. For biblical scholarship, this lack of transparency undermines trust. Research into explainable NLP systems could ensure that AI outputs include not only results but also justifications. For example, if a model classifies “Babylon” as symbolic rather than literal, it should provide the linguistic cues that informed this decision. Such transparency would allow scholars to critically evaluate AI contributions rather than passively accept them, aligning computational work with the academic ethos of accountability (Berry & Fagerjord, 2017, p. 78; Underwood, 2019, p. 214).

Future research should also focus on interdisciplinary collaboration, bringing together biblical scholars, computer scientists, geographers, and archaeologists in sustained partnerships. While pilot projects have demonstrated the feasibility of such collaboration, more systematic efforts are required. Joint research centers or digital consortia dedicated to sacred geography could ensure that AI methods are properly contextualized within historical and theological frameworks. Such centers could also serve as hubs for training, equipping a new generation of scholars fluent both in biblical studies and in computational methods. This interdisciplinary training is essential for the future sustainability of the field (Beldman, 2021, p. 69; Crawford, 2018, p. 159).

In addition to methodological advances, there is a need for ethical frameworks guiding the use of AI in biblical studies. Scholars must articulate principles that safeguard against reductionism, bias, and exclusion. For instance, ethical guidelines should mandate the inclusion of multiple textual traditions, transparency about data sources, and sensitivity to the theological significance of geographical references. These frameworks should also address issues of access and equity, ensuring that scholars in the Global South have opportunities to contribute to and benefit from digital projects. Such ethical commitments would align the emerging field of digital biblical geogra-

phy with broader concerns for justice and inclusivity in global scholarship (Berry & Fagerjord, 2017, p. 80; Witherington, 2016, p. 140).

Practical recommendations can be drawn from these considerations. First, academic institutions should integrate digital humanities training into biblical studies curricula, equipping students to use AI tools critically and responsibly. Second, funding agencies should prioritize collaborative projects that bridge computational and theological expertise, ensuring that neither domain dominates the other. Third, open-access platforms should be developed to share datasets, algorithms, and results with the global scholarly community. This openness would democratize research and prevent the concentration of knowledge in a few elite institutions. Finally, researchers should continue to emphasize hybrid methodologies, using AI as a servant to, not a substitute for, hermeneutical interpretation. Such recommendations will ensure that AI enriches rather than impoverishes the study of sacred texts (Rainey & Notley, 2006, p. 95; Wright, 2012, p. 55).

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## 6. Appendix

Table 1 – Symbolic vs Literal Uses of Place Names

Place Name	Literal Meaning	Symbolic/Theological Meaning	Example Reference
Jerusalem	Historical city in Judah	Symbol of divine presence / heavenly city	Rev. 21:2

<b>Babylon</b>	Mesopotamian empire	Symbol of idolatry and oppression (Rome)	Rev. 17:5
<b>Wilderness</b>	Desert region in Sinai/Judea	Site of divine testing and purification	Matt. 4:1–11
<b>Zion</b>	Hill in Jerusalem	Symbol of God's dwelling and eschatological hope	Ps. 132:13; Heb. 12:22

Table 2 – Traditional vs AI-Based Approaches in Biblical Geography

<b>Aspect</b>	<b>Traditional Approach</b>	<b>AI-Based Approach</b>
<b>Textual Analysis</b>	Manual philology, concordances	NLP entity recognition, semantic clustering
<b>Mapping</b>	Static atlases, hand-drawn maps	GIS dynamic visualizations, interactive maps
<b>Pattern Discovery</b>	Exegetical observation	Machine learning algorithms
<b>Cross-Disciplinary Links</b>	Limited integration with archaeology	Automated integration of datasets
<b>Scale of Analysis</b>	Limited by human capacity	Entire biblical corpus, multiple languages

Table 3 – Digital Tools and Functions in the Pilot Experiment

<b>Tool</b>	<b>Function</b>	<b>Output</b>
<b>Python (NLTK, spaCy)</b>	Entity extraction, semantic tagging	List of place names and categories
<b>Scikit-Learn</b>	Clustering & pattern detection	Three thematic clusters
<b>QGIS</b>	Spatial mapping	Interactive geographic map
<b>ArcGIS Pro</b>	Route simulation	Modeled paths (Exodus, Paul's journeys)

Figure: Digital Map of the Exodus and Paul's Second Missionary Journey



Figure 2. Literal and Symbolic Geography in the Old Testament



Figure: Literal vs Symbolic Geographical References (Illustrative)

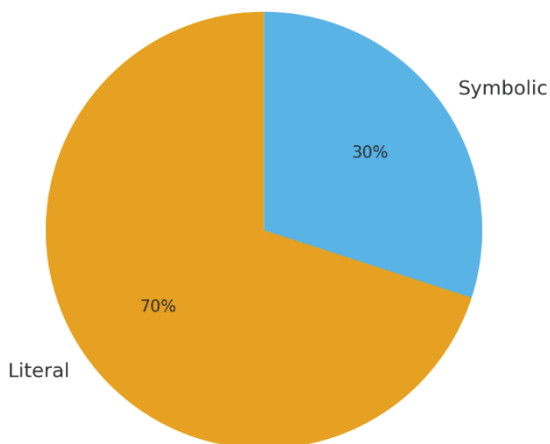


Figure: Distribution of Geographical References by Testament (Illustrative)

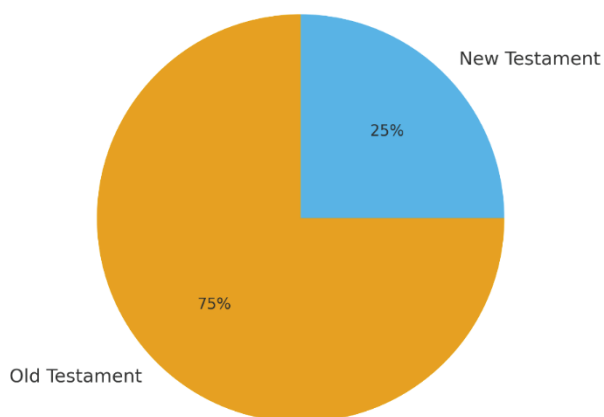


Figure: Frequency of Selected Biblical Place Names (Illustrative)

